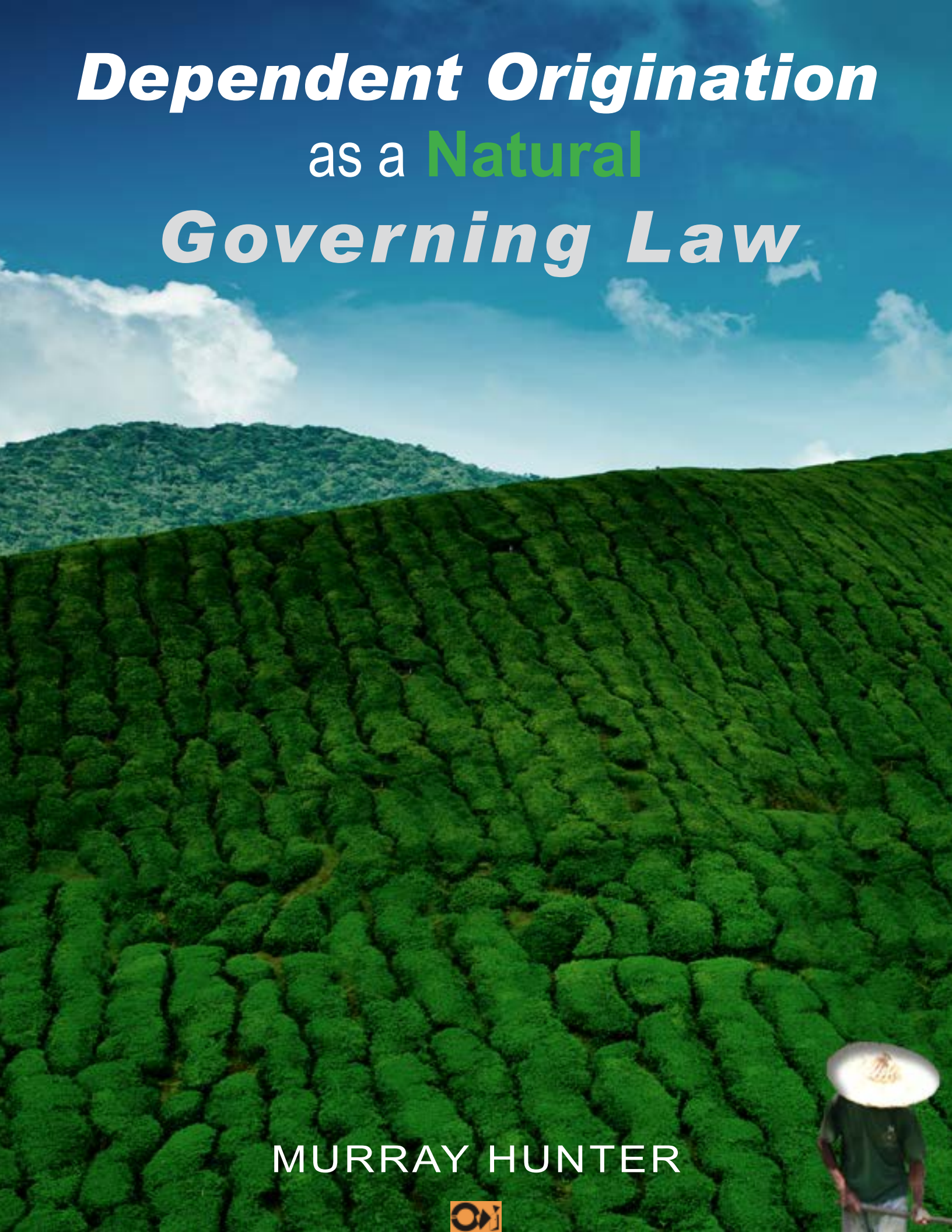
Dependent Origination as a Natural Governing Law



MURRAY HUNTER

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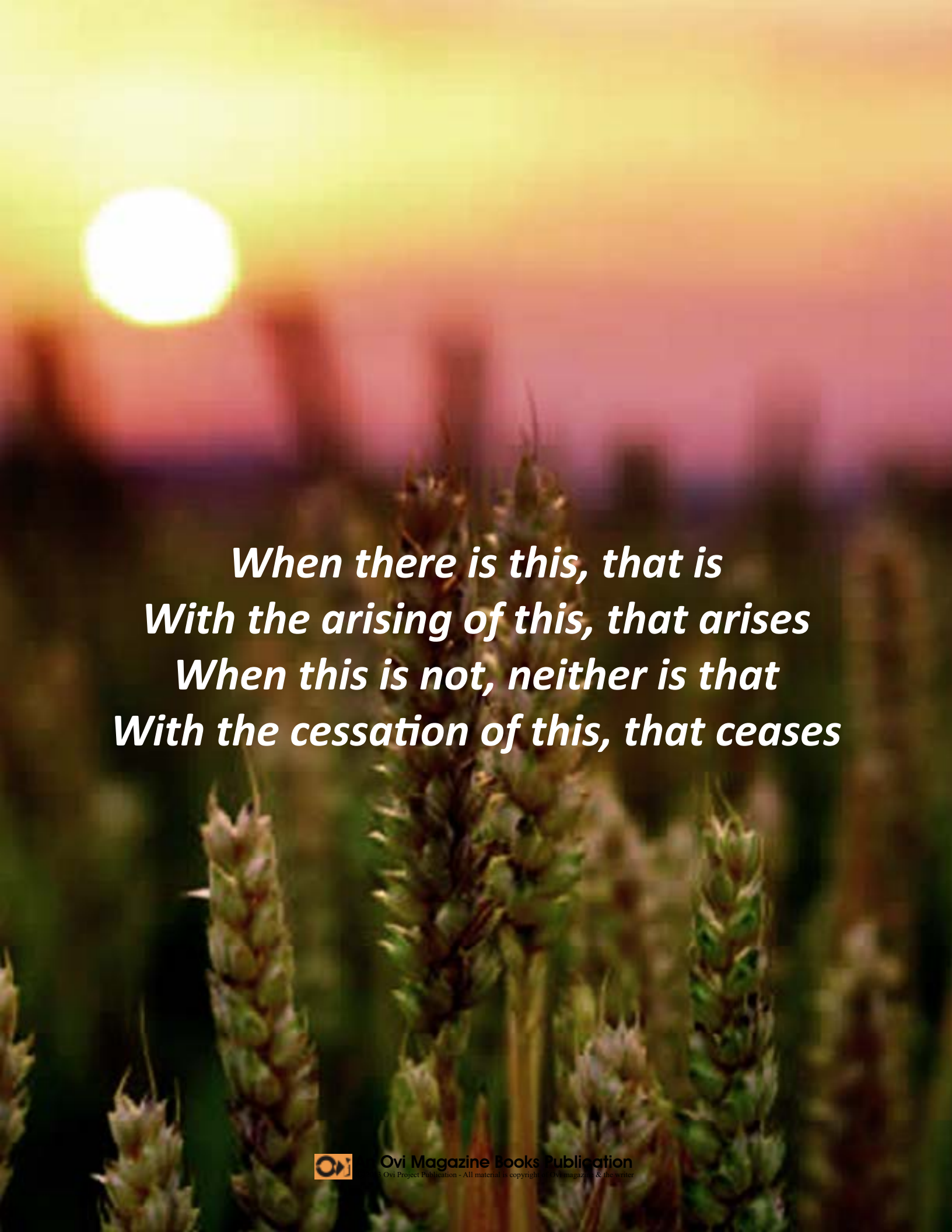
When there is this, that is
With the arising of this, that arises
When this is not, neither is that
With the cessation of this, that ceases

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Abstract

The following paper explains the concept of dependent origination and its place in Buddhist Dharma (teaching).Dependent origination is then described as a heuristic and discussed in relation to James Lovelock's GAIA hypothesis, the solar system, the economic system, the social environment, event phenomena and entrepreneurial opportunity, consciousness and self concept, and the ethical standpoint.

When there is this, that is
With the arising of this, that arises
When this is not, neither is that
With the cessation of this, that ceases

- Law of Universal Nature[1]

Introduction

The concept of dependent origination *(paticcasamuppāda)*[2] was developed by the spiritual teacher *Siddhārtha Gautama* who became known as the *Buddha* upon enlightenment[3]. The *Buddha* used the concept to explain a causal relationship between worldly experiences and suffering or *dukkha* of people through everyday life phenomenon. The *Buddha's* straight forward teaching was in stark contrast to the practices of society in India at the time where people worshipped *'sacred'* objects, *'supernatural'* beings, and performed rites and rituals based on superstitious beliefs. Buddha's teachings did not contain the mystical or concern itself with metaphysical issues, although he stretched the meanings that people already knew to create new meanings[4]. Others superimposed esoteric teachings after his death[5]. However the presence of the esoteric is part of the poetry of teachings that assists in conveying meaning within the paradigm of human consciousness at the time[6].

The *Buddha's* revelations came at a time when his contemporaries were influenced by astronomy, where the universe was seen and explained as a linear and regular entity, with consciousness separated from the universe and the universe separated from consciousness[7]. This *mechanistic* view of the world was expounded upon by Descartes, Newton, Weber and later Frederick Taylor in the management arena with influence lasting well into the 20th century. Since the end of the European renaissance the metaphor of science has been that of the machine with the universe being described as *'grand clockwork'* where the planets spin around the sun in a predictable fashion, described by the precision of mathematics. Science reduced everything to the smallest part in the belief that *if one understood the parts one would understand the whole system.* Reductionism is the standard of science[8]. This thinking still prevails through the means of how we live and organize ourselves, where organizational charts, job descriptions, policies, strategies, budgets, and operational plans are utilized as a means to control of the organization and environment like a machine. This has been adequate where a stable equilibrium exists, but this itself is only a myth. The predominating theories were observer based where predictable order, stability, separation from the individual, and grounded '*fixedness*' are the major characteristics.

In contrast, dependent origination presented an alternative view to the world to what Descartes and company espoused. Dependent origination postulated a co-evolutionary interrelated world based on co-dependency, built upon dynamic cause and effect to create aggregate conditions, rather than the accepted *'Newtonian order'* of existence.

Although the philosophy of dependent origination, which is considered *'the heart'* of Buddhism[9], can be applied widely, the *Buddha* restricted his application of the principles to the development of human nature and explanation of suffering. On metaphysical and matters of the hereafter, he was silent, thus the concepts are very vague for application for other domains. Nevertheless, the concept of dependent origination can be closely aligned with many aspects of quantum mechanics[10], systems[11] and chaos theory[12], Darwinian natural selection extrapolated to a cosmic scale[13], Dawkins views about evolutionary biology[14], the Gaia hypothesis[15], and cognitive science[16]. The concept of dependent origination distinguishes Buddhism from religion[17] as according to dependent origination a creator is not necessary in forming the cosmos which has been postulated to evolve through causal dependence in a similar view taken by Hawking and Mlodinow[18].

The Doctrine of Dependent Origination

The general principle of dependent origination concerns the fundamental structure of nature and how the elements within it interrelate. The doctrine of dependent origination looks upon the universe as a continuous succession of action, reaction, and effect within a state of dynamic flux and transformation. Max Brown postulated that the occurrence of entity "A" relies upon the occurrence of entity "B", *i.e., "B" is the cause of "A".* This implies antecedence where causes must precede or at least simultaneously exist for something else to exist. These phenomena must be spatially connected by a chain of immediate things in conduit[19]. However this is abandoned by dependent origination where mutual arising with entities co-depending upon each other for existence. Dependent origination is not a sequential linear process; it is a cycle with no beginning and no end.

Charles Darwin in the last paragraph of *The Origin of Species* wrote;
"It is interesting to contemplate a tangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent upon each other in so complex a manner, have all been produced by laws acting around us[20]".

This gives us a perspective of his sense of wonderment about the complexity[21] and interrelationships within the biological system of life and evolution that the concept of dependent origination postulates. Thus only through interrelatedness can we see meaning;

Paper without a tree
A tree without soil
Soil without water
Water without clouds
Clouds without an atmosphere
An atmosphere without oceans.

This according to Winnicott is also relevant to human relationships, the family and the outside world[22];

A child and a parent
A parent and a partner
Partners and family
Family and friends
Friends and humanity
Humanity and nature.

Everything in the realms of nature and humanity are dependent upon each other for existence. Things only exist through relatedness[23]. We can only exist through relatedness. Nothing can exist in isolation as it all depends upon numerous determinants which are all interrelated. If one doesn't exist then the rest can't exist. This continually changes, therefore entities change all the time.

This can be clearly demonstrated with a plant where the plant relies upon the soil as a medium, minerals and

nutrients to grow, moisture as carrier for the nutrients and a building block for cellular structures and the sun to enable photosynthesis for the building to occur. Without any of these, the plant cannot exist. The determinants that enable a plant to grow do not influence the plant in any sequential order of time. They must exist together, interdependent of each other. The plant contributes to maintaining the system through the shedding of leaves and other foliage, which decays, adding to the humus and trace minerals in the soil. In theory for anything to exist in isolation, it must be self-sustaining and stable. However within the laws of nature that is impossible, thus as a consequence everything is only transient with no intrinsic properties of its own. All entities are created and sustained through interrelationship. There is no beginning or end as the question of what came first cannot be answered: *"the seed or the plant, or the chicken or the egg?"*

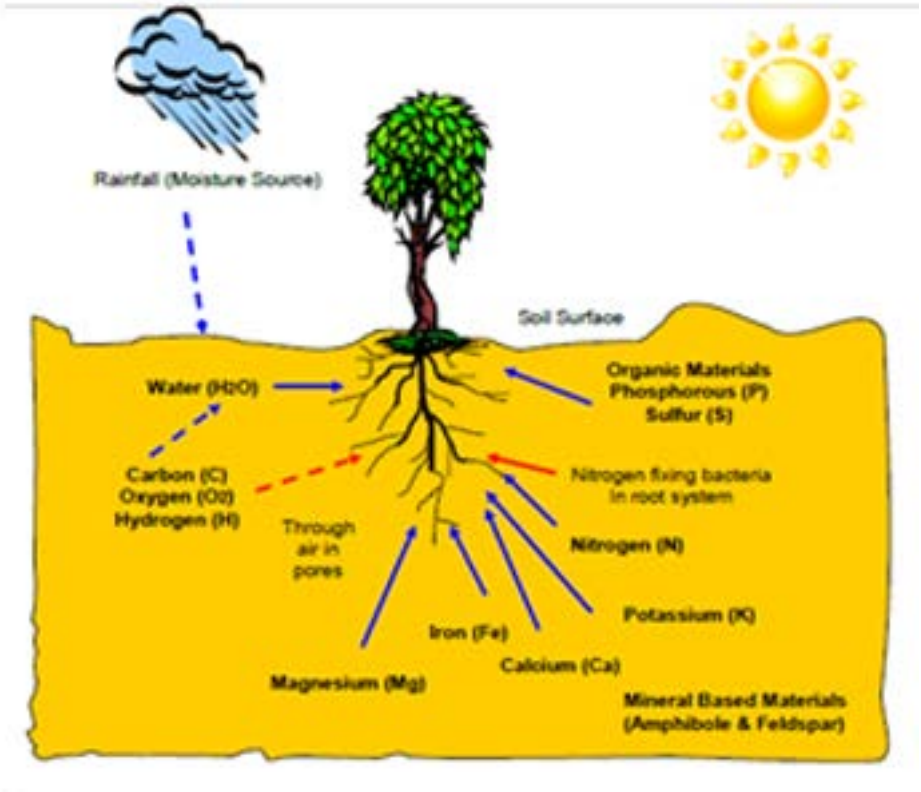


Figure 1. The dependence of a plant upon the whole environment to survive[24].

There is no such thing as chance. Every event is a result of the consequences of previous events, cumulating as multiple influences upon what is. Therefore the notion of chance depends upon preconditions. As nothing exists in isolation, everything depends upon pre-determinants that are not sequential or required to arise in any particular order. This is in great contrast to the classical paradigm where the universe was deemed to be predictable like billiard balls rolling upon a table. Quantum behavior is also attuned to human behavior which is much less predictable and impossible to measure through mathematics; where only probability can be predicted through heuristics.

Dependent origination as a universal heuristic would look something like figure 2. The lines represent and interplay of two causal factors, one linear and the other synchronic that contribute to a non-linear pattern. Lines (2) and (4) are linear and connect past events overtime to the present and ground the future. Lines (1) and (3) are synchronic and connect objects and events to the present moment. These two basic principles intersect representing that all events are influenced by the two sets of conditions. Structurally this divides a system into parts, connecting the past, present and future together. The past and present circumstances determine the present which creates consequences for the future. However don't confuse time itself as a determinant, as time is itself a *'manmade'* invention[25]. Time itself does not directly influence events, only what happens within the framework of time.

Every event takes place in a context determined by the combined influence of past events and present circumstances. Every event has repercussions in the present with reverberations extending into the future. The strength of the influence will depend upon the intensity of the event. Sometimes events reverberate and amplify an effect and sometimes events may suppress an event[26]. However this is not the result of a chain of causes leading to effects strung over time. Any event may be affected by a past event and present circumstances which may lead to unexpected feedback loops during the causal process[27]. Due to this possibility of any event happening at any time, the causation or arising process is extremely fluid and complex[28]. The *Pali* explains the phenomena using the metaphor of water rather than the *wheel of samsara*, thus metaphors such as *ebb and flow* are much more suitable than *"sequencity"*.

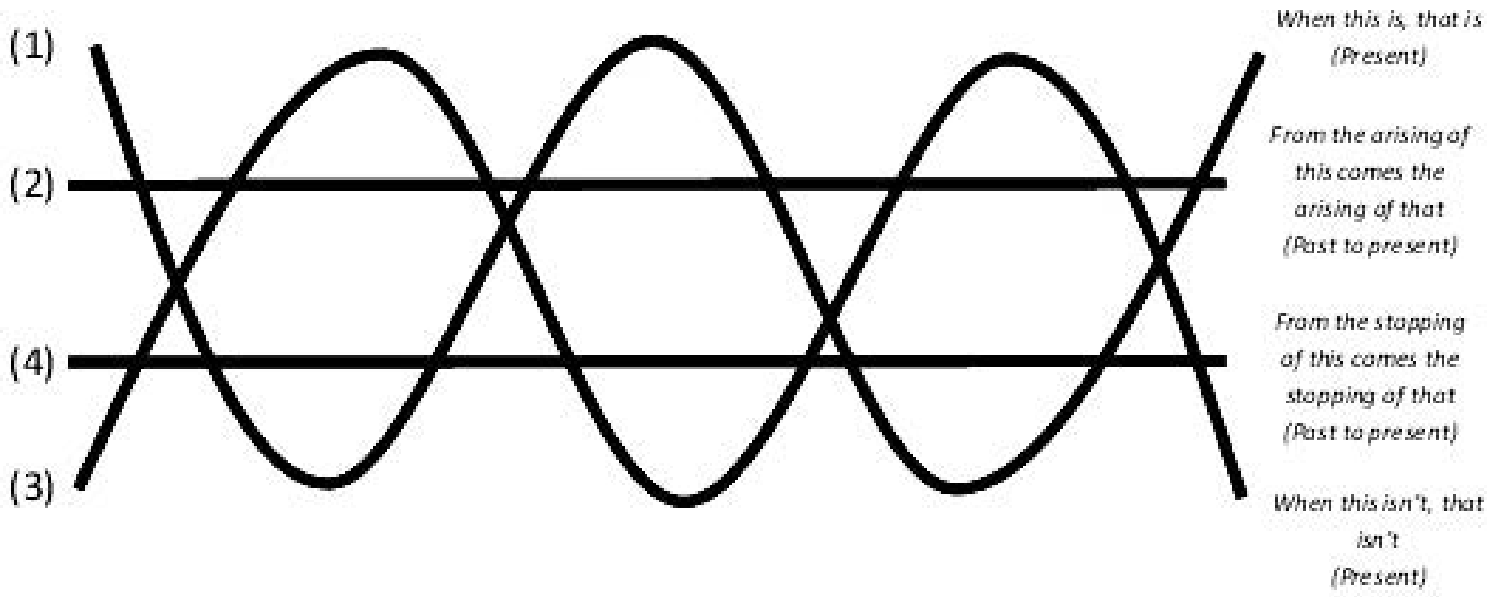


Figure2. The dependent origination heuristic

If everything existed in linear relationships, everything would be totally predictable and deterministic and the future would be unable to change from the present and past. If everything was totally in synchronic relationships there would be no relationships from on period to another and all events would be totally random and completely unpredictable. Everything would just break down and change without reason and connection. The two modes work in concurrence where past events and present circumstances create a potential, but not completely determined path.

Critical to the continuality of the processes of dependent origination is feedback. Feedback is one of the *energies (along with momentum)* that enable the system to operate continuously as a *self organizing system.* To understand how particular feedback occurs is to understand the manifestations of dependent origination. It is this feedback which defines interdependency. However this understanding may be beyond our cognitive abilities and is thus one of the challenges for mankind to overcome in the future[29].

Closed feedback loops are responsible for linearity of the system and open feedback loops are responsible for non-linearity of the system. Closed feedback loops influence quantitative rates within a system, such as a thermostat regulating temperature in a room. Open feedback systems are more dynamic and allow for changes in the state of a system, like the change in direction of wind within a weather system that brings a change in the state of weather.

Simple closed loop feedback systems can be responsible for counterintuitive behavior[30]. For example, we usually over correct heater thermostat systems which lead to oscillations in room temperature until we find a stable range. This is very similar in a free market pricing mechanism in economics where an increase in price leads to the entry of new producers until supply outstrips demand and the price decreases to a level where producers leave the industry, leading to supply shortages and increases in prices once again, in a continuous cycle.

Open systems tend to operate with multi-loop non-linear feedback systems where many variables provide for unpredictable results. It is the interaction of counter-reactive feedback loops that provide the unpredictability and *chaos* within the system. Mathematical formulas are centered on linearity and cannot predict the outcome of a system that is both *emergent* and a *self organizing system.* As the number of feedback loops increase the complexity of the system increases exponentially[31].

If one traces back the stream of events, no root causes can be found for anything. Events are an emergence, a natural evolution where there is a mutually arising[32]. Open systems are just too complex to determine any single cause, and selecting single causes to explain phenomena would just delude reality. Consequently there is no beginning and end, just a continuous flow of events.

The doctrine of dependent origination applies to all things and subsequently all things are influenced by cause and effect, *Kammaniyama* the law of karma determines future behavior. All events and phenomena produce karma. Karma is the *'potential'* generated by *'cause and effect'* or the interrelationships between dynamic entities[33]. Karma can have a positive or negative consequence upon the future. Karma being a *'potential'*[34] is what keeps the universe transient across time dimensions. To some degree karma actually provides the substance to time, as without karma there would be no change in the universe and thus no time[35]. Karma is regularly mistaken for something psychic that acts upon the soul, more attuned to the romantic narrative of a humanized religious version of Buddhism[36], or the mythology of reincarnation based on past deeds done upon the Earth. Other misinterpretations describe karma as a form of fate.

The Application of dependent origination in Buddhism

In Buddhism dependent origination or *paticcasamuppada* is applied to the arising and cessation of human suffering[37]. *Paticcasamuppada* explains how suffering arises and how suffering ceases as a matter of natural interdependence, *i.e., everything arises, exists, and passes away in a transitory manner[38].* According to the principle of dependent origination all human thoughts and feelings are grounded in ignorance which deludes one to a false sense of self which we call *"I'* or *"me",* when in fact there is really no self in existence, just the illusion of a self based on emotions. Only a deluded self can be part of the cause and effect that occurs within dependent origination as karma, where all intentions, thoughts, feelings, and actions have consequences.

The teaching of *paticcasamuppada* attempts to clarify the events of nature as they actually occur in order to highlight the causes and correct them. Dependent origination occurs within the context of flowing through a number of states of ignorance and types of attachment. Buddhist teaching of *paticcasamuppada* covers three lifetimes which implies the existence of something that passes from one lifetime to the next. However this is only metaphorical as it is contrary to *Buddha's* teachings[39]. There are twelve dependent origination links which resemble a person's thought processes.

Ignorance of the truth as things really are and being deluded by nominal realities is the first of twelve situations in dependent origination. Ignorance builds up over time and become ingrained within our deepest inner assumptions as fears and anxieties, such as the fear of mortality. Ignorance can emerge into a psychotic state where basic *'good'* or *'bad'* are difficult for a person to determine[40]. With this basic ingrained ignorance, intention and thought is influenced.

This is a prerequisite to the second link karma where our continued greed, envy, anger, becomes the basis of our personality, beliefs, and habits. Our thoughts, speech and actions create karma. Karma is the law of cause and effect in relation to our mind, speech and actions, *i.e., causation.* Human ignorance and corresponding actions are a past cause of karma and current action creates new karma. New karma is continually generated through our *'mindstream'* and is maintained within us like a storage bank. Karma can be good or bad depending upon the

nature of our actions. Our stored karma determines how we perceive and respond to stimuli in the world. This becomes the motivating force behind action and is thus important to the concept of dependent origination on a personal and social level.

The third link, our consciousness[41] is conditioned into a basic mind-state where we have a tendency to see what we want to see. Due to the large number of stimuli within the world we live within, attention focuses our mind on specific objects in a similar way a filter takes out what is not wanted. There are many stimuli and corresponding mental factors operating at once, however the mind is unable to process them simultaneously. In this situation only data from one sense can be processed at any one time. This means for example if driving a car and speaking on a mobile phone at the same time, stimuli from outside the car and from the phone can only be processed sequentially, meaning we are experiencing an illusion that both are operating together[42]. We do this through our body and mind, the forth link referring to our five forms that constitute a person, namely the physical being including sight, hearing, taste, smell, and tactile feeling, sensation and feelings, *i.e., contact between the body and objects*, perception and ideas, *i.e., our ability to recognize objects and ideas*, mental labeling and acts, and basic consciousness[43]. Through our senses, the fifth link, we see, hear, smell, taste, or feel an object without making any identification or giving any label to it.

Once our senses make contact, the sixth link, raw data is collected and must be identified through the process of discernment where the object's characteristics are matched against templates in the mind (memory) where a focused awareness and coordination of the senses with our mental impressions through our perceptions occurs, the seventh link[44]. This gives rise to volitional impulses that guide of focus and concentration and influence the value and meaning on the objects we see[45]. Once the object is identified, feelings of desire or repulsion arise. These feelings then develop into a like or dislike for the object which trigger feelings of desire or repulsion. Desire or repulsion varies in intensity from a mild to a strong attraction or repulsion for the object. It is the feeling which gives value to any object by a person. This is attachment which is the eighth link.

Feelings are generated from our natural condition, mental disposition, personality, and training. Our natural condition is the intuitive tendency we feel towards any object we come into contact with. There will be a natural tendency to go towards or away from the object. In addition our mental disposition is affected by our moods and can be influenced by altered mind states like intoxication. Our life experience, environment, and cultural influences all contribute to the development of our personality and preferences that influence how we act. Consequently we look at things in a prejudiced light, in a *'good'* or *'bad'* light, stereotyping objects and people[46]. Our actions are more related to our impulses rather than the actual reality[47]. This is a confused and ignorant consciousness where understanding the concept of our non-permanence is impossible. If consciousness cannot be transformed from ignorance to enlightenment, then the person will continue to endure suffering.

The process of attachment begins at birth where we are quickly dependent on our mother and create likes and dislikes for things. As these emotions are strong, the majority of people are incapable of withdrawing from these attachments in life[48]. The thought processes that lead to attachment are important to how we identify our own sense of self and being. This is agreed upon by many psychoanalysts, including Freud, who saw traits like anger, aggressiveness, craving, hatred, and lust making a large contribution to how we see ourselves[49]. Attachment also gives objects, people and events value and meaning that may differ from the actual reality. It becomes the *"lens"* through which the environment is experienced and interpreted[50].

There are different forms of attachment[51]. Sensual attachment occurs when we like possessing objects that we are enchanted with. These objects include colours, shapes, sounds, odours, flavours, other objects of desire, images *(whether real or imaginary)* of the past, present and future that are in the mind. Sensual attachment can lead to feelings of envy, anger, arrogance, hate, and can even lead to acts of murder and suicide. Everything a human does has some origin in sensual attachment and it is the power that drives people to study, work and earn money in the search for pleasure. Because of the desire to feel good, one can become a slave for all the

trappings of status, power, wealth, and comforts that it brings, even though it forces one to agree all the time. Such a relationship brings out arrogance, ostentation and blind attachment. The desire to go to heaven preached in most religion also has its roots in sensuality. Sensuality is the primary form of attachment.

To have one's own opinions is very natural. However when ideas and opinions become cemented into a person's mind and they cling to them, this becomes attachment. Many of these opinions are bound up in customs, professions, religions, traditions and rituals and our perceptions become dogma based upon the beliefs a person subscribes to[52]. They become stubborn convictions which cannot be changed due to the cement of long held traditions, professional practices and/or beliefs. The clinging to views and opinions is based on original ignorance, where existence becomes very mechanical with programmed type responses. If we see wrong we rarely admit it, often leading to anger and even violence or war, where naïve doctrines are held. When we become attached to our sheltered culture, imagination and perceptions, the potential for progress and development is hindered. When things are considered sacred and cannot be changed under any circumstances, i.e., beliefs about *'artifacts'* like qualifications, *'magical processes'* like strategic planning and *'secret procedures'* like employee selection, rationality is distorted and becomes a barrier to change.

Finally, one can be attached to the belief of the idea of *'self'* or *'I'*. This is also a common occurring form of attachment and like attachment to opinion, is very hard to detect. The paradigm of *'me and mine'* is based on our primal instincts to hunt and gather, procreate and protect, etc. We also tend to see our existence as eternal and fear the concept of death. This form of attachment eliminates any beliefs in transience where the person unconsciously develops delusions of permanence and solidity. This creates the fear of loss and desire to defend and protect both time and space as something needing to be held onto. Freud (1926) also saw the importance of the sense of loss to a person – love, object or experience, and saw that loss *(and potential loss)* can lead to manifestations of depression and anxiety[53]. This most often leads to the search for pleasure seeking experiences to avoid further pain and suffering.

Another consequence of the *'me and mine'* paradigm is the development of aversion. When something threatens our self image, aversion steps in to maintain our self notion of permanence. Aversion may range from simple avoidance of the issue, to dissatisfaction, frustration or intense anger. The source of all these symptoms is our ignorance of our self at the unconscious level where the mind exaggerates the negative parts of our self image[54]. Attachment can also feel good as it may be covered in love, *i.e.,* slave of a person, or anger with oneself may be covered with hate for something or someone external to oneself. These symptoms develop into a number of defense mechanisms.

Craving is the ninth link, which is more intense form of attachment. People are not content with what they have and desire to seek pleasure and avoid pain, even at the cost of harm to others. Craving motivates one to capture and control these sources of pleasure. This becomes an aversion to other things. **A**s desire becomes stronger it develops into clinging, a fixed position is adopted towards things. This may refer towards things, processes, practices, models, the belief in oneself, etc. Therefore life situations are evaluated and appraised from these standpoints*, i.e., a person's approach or self view*. The removal of loss of pleasurable things can lead to grief. This is intensely selfish and leads to bad karma which traps one in a state of delusion.

Clinging leads to becoming where one exists within a set of conditions of life states both at the physical and mental level, which influences patterns of behavior, character traits and aspirations. This affects life situations where the person is influenced about what they think and how they behave from their form of becoming. Their thinking and emotions are patterned within their belief systems and aspirations, values, and according to what behavior has worked in the past. Most people live within this deeply conditioned type of life. Their actions produce karma that results in long term consequences and also influences their own deep character traits. At this stage of life things seem permanent and a distinct sense of self exists identifying with a life situation, *i.e., feelings of one as*

an owner, a success, a failure, and so on. Wisdom doesn't exist as one is programmed by their deep set beliefs and traits. The *"I'* is strong and superior and this identity is staunchly defended. Arrogance emerges with a sense of authority.

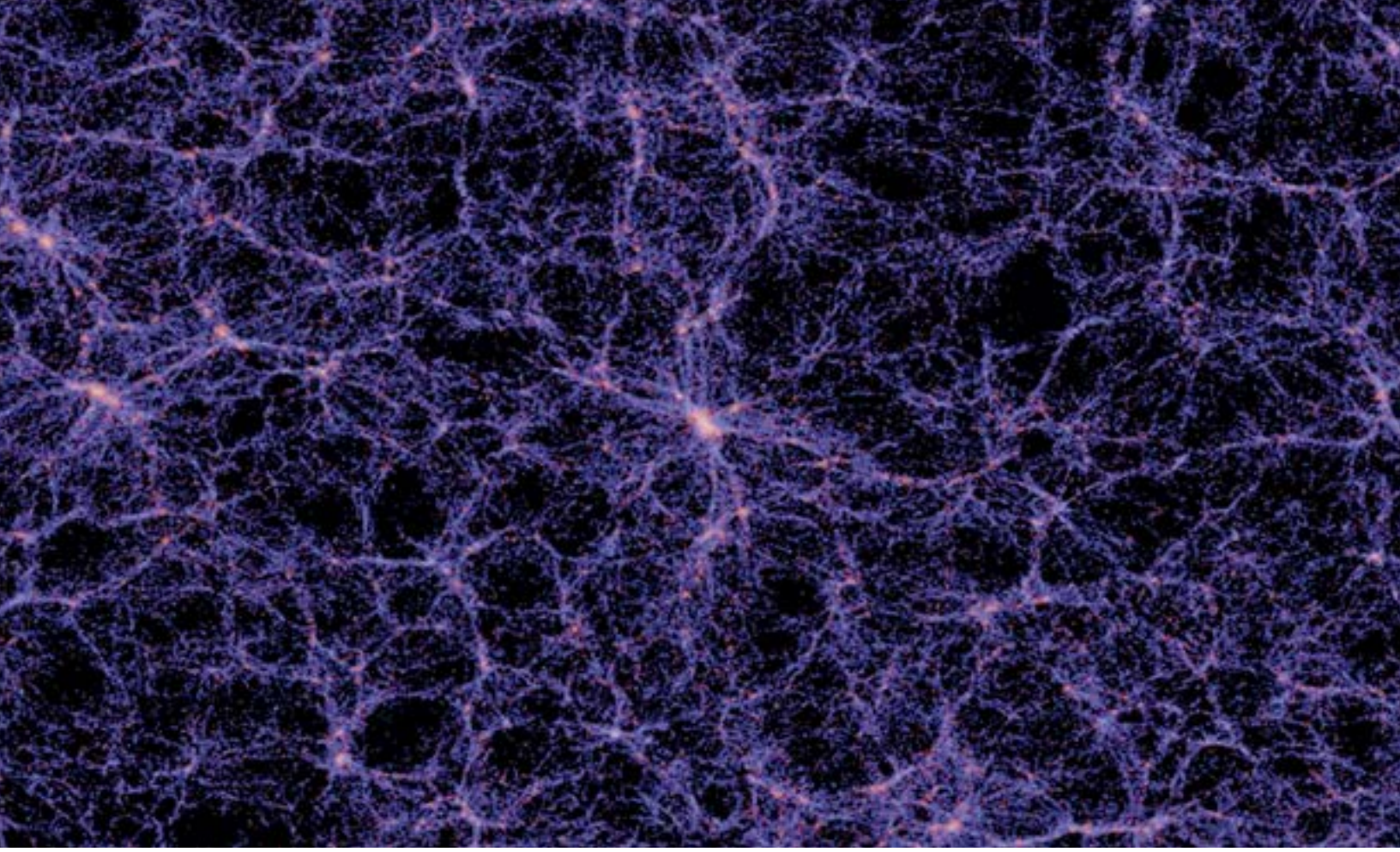
However with this becoming comes the opportunity for another birth, the tenth link. A person with a life of craving through ignorance will be doomed to be re-birthed within the *cycle of samsara*[55]. However upon reflection, one may realize their state of delusion and rebirth themselves with all sorts of new possibilities[56]. According to Erikson, a person goes through a number of stages during their life where their identity, achievements and self worth are questioned[57]. Thus a person may find emptiness in their life that leads to evaluation and the hope of change. Within this period of questioning there may be a change in existing relationships, the taking up of new activities, or the commencement of self employment with a sense of spiritual guidance influencing the future path. This phenomenon is not restricted to midlife. Situational changes may influence people to react and respond to newly perceived circumstances[58]. Crisis can occur anytime during life, leading to new revelations, and needs to re-evaluate one's life achievements[59]. If no change occurs then one is doomed to following the same existence which is the eleventh link. Birth refers to the '*birth of the moment'* rather than a physical birth of a new life.

The final link death is a reminder that nothing is permanent and all humans face the ultimate truth of dependent origination. Life entails the experience of decline within it. These include the imminent degeneration of that state the experience of adversity and ruin within it. The inevitability of decline and dissolution together with the constant anxiety and effort to protect oneself from the inevitability of mortality causes sorrow, pain, grief, despair and suffering. One day the self will be deprived of its position which may bring neurotic thinking and behaviour and fear of death. One also faces disappointments with what was not achieved. Those with a sense of success are dependent on external factors such as fame, praise, attainment, or special privileges, or recognition, etc. One occupies space with boundaries and develops this dualism of self and non-self.

Thus the delusion of the self is the cause of all grief in peoples' lives. The existence of people as entities is the wrong view[60]. The wrong view is where people are deluded into believing that we are a soul. In fact the soul is only a *paticca-samuppanna-dharma* which arises in response to the natural law, *i.e., the result of events which dependently arise upon other things such as contact with objects that bring feelings that lead to greed and craving that leads to the delusion that one exists.* Any soul cannot exist in isolation, it is the product of emotions and the conditions that give rise to emotions, which enables the mind/body to think, speak, and act.

Thus belief in a person as an entity is the wrong view in Buddhism. It is only the deluded sense of self that is part of cause and effect or karma, where all thoughts, feelings and intentions have consequences. Through mental conditioning developed by training, one can change their programmed response to objects. This can be seen when learning to drive a car. When just learning we need to concentrate on every action taken, but once driving is conditioned within the mind, one does not require the same concentration and actions taken appear to happen intuitively and naturally. In Buddhist practice *paticcasamuppada* is concerned about developing wisdom to enable a person to override the emotions that arise when the senses contact stimuli in the environment. When ignorance clouds the mind suffering arises which generates into an existence of permanence in attitude, bias and belief. However when mindfulness and wisdom govern the senses, suffering will cease. Becoming free of the wrong view and extinguishing suffering is the principle objective of Buddhism[61]. Freedom from suffering is a form of selflessness, where interpretation differs between different schools of thought[62]. This path can be practiced as cause and effect exists in the *'here and now'* rather than in some past fate determined situation. If the cause of suffering is from a past life[63], then one cannot become free from suffering which is contrary to Buddhist teaching.

Dependent origination is a non-literal philosophy, open to wide interpretable meanings[64]. The rest of this paper will consider dependent origination within various types of environments, event phenomena (opportunity), consciousness and self concept, and ethics.



Applications of Dependent Origination

Siddhārtha Gautama once was reported to say that *"the whole world, how it arises and how it ceases is to be discovered in the actuality of this fathom-long body"*[65]. All phenomena are complex and as a consequence any analysis through reasoning is beyond our cognitive capabilities. Thus we can only derive partial meaning of any phenomena, as all phenomenon have multiple layers of meaning, of which we are usually only able to pick out the other layers, leaving the inner and middle layers unexamined. Reductionist tools like mathematics and geometry have great difficulty in explaining everyday occurrences like the operation of a steam value, a tennis game, riding a bicycle, and catching a ball as there is the element of chaos *(not to be confused with crisis)* and unpredictability in any phenomenon. One can develop complex wave equations but never really know exactly what is going to happen. Reductionism relies upon linear perfectionism which doesn't exist. Even the earth's rotation is not exact. Our perfectionist time systems must be regularly adjusted to account for nature's imperfection[66]. We try to think about the world in a linear way where the world really behaves in non-linear ways. Most events need to unfold along particular paths, something that cannot be controlled. Evolution is an unplanned process.

Within all phenomena, events and objects arise in co-dependence or as causes and conditions of each other. This can occur both linearly and cyclically according to the heuristic of dependent origination. Arising implies change, which is a continuous phenomenon. The heuristic also implies that nothing occurs in isolation as all objects and events are dependent upon other objects and events. Thus everything according to this heuristic is empty and has no inherent existence within itself. Meaning depends upon relatedness. Without relatedness there is no meaning. Thus the very paradigms we use to examine the environment lack the depth and vocabulary to explain what is taking place to others. Metaphor and analogies simplify the explanation and expression of events and phenomena which may weaken our understanding of meaning.

Dependent Origination and the Environment

The word environment covers vistas from the immediate social and physical manifestations of the local area to the entire cosmos. Each environment vista can be seen as a system within a system, within a system, within a system. Dependent origination infers the concept of non-permanency which runs parallel to the concepts of evolution, change, adaptation, and maybe even progress. Everything is constantly changing where no object retains all of its component parts, qualities and characteristics from one moment to the next[67]. Other than quantum mechanics, dependent origination has rarely been applied to anything else. The author postulates that dependent origination is the natural law that can be seen to govern all systems, although detail in how to apply these concepts is scant and vague and would be the subject of wide and long research[68]. At best the author can link the dependent origination heuristic with other theories and phenomenon for others to accept or reject the analogies.

The Gaia Hypothesis

James Lovelock, a British inventor and scientist became interested in the atmospheric parameters on Mars when he worked with NASA on the Viking project in the 1960s. In finding that the Martian atmosphere was stable in chemical equilibrium with an abundance in carbon dioxide, where little oxygen, methane, or hydrogen existed, Lovelock hypothesized that any life would have to make use of, and thus alter the atmosphere to exist. This was in great contrast to the Earth's atmosphere which had abundant oxygen that could sustain life[69]. This contrast led Lovelock to hypothesize the Gaia hypothesis that the Earth behaves as a single self regulating system made up of physical, chemical, biological, and human components[70].

According to the Gaia hypothesis all physical surroundings, features of the earth, pedosphere, hydrosphere, biosphere, and atmosphere are totally interdependent and act as a single physiological system. Everything within the earth's ecosystem is of equal value and is necessary for other features to operate as systems. Every phenomenon and process is reliant and in-turn relies upon other systems and phenomenon to react upon to exist. Conditions on earth thus rely upon a physical and chemical homeostasis which is the result of interacting systems and the systems within the systems, within the systems. Consequently Gaia is an arising system that operates according to heuristics rather than linearity. Thus total predictability does not exist where phenomenon cannot be necessarily explained through mathematics[71]. The Earth *'acts'* without any purposeful design, but is at the same time an emergent entity. One of the most important aspects of the Gaia hypothesis is the cybernetic feedback loops that regulate the Earth.

Lovelock mentions that although the Sun has increased luminosity by 25% since life began on earth, the earth temperature has remained the same for 3.8 billion years[72]. In response to criticism by W. Ford Doolittle and Richard Dawkins[73], Lovelock developed a computer simulation model which he called *Daisyworld* to demonstrate the Gaia phenomenon.

The principles of lovelock's *Daisyworld* model are not un-similar to how the human body regulates temperature. Benzinger *et. al.* found that the human body decides upon body temperature levels through the brain making decisions based on data received through the nervous system from major organs, *i.e., there is no central decision making mechanism*[74]. When the ambient body temperate is too hot or cold, the body responds by sweating, dilating blood vessels to regulate blood flow, shivering, and/or burning fat to produce heat.

Lovelock and Andrew Watson utilized the same approach to understand the dynamics of the earth[bw]. The computer simulation of *Daisyworld* represents an earth like planet revolving around a Sun like star to our own. The surface temperature on the planet is affected by the colour due to the *albedo effect*[76]. In the case of *Daisyworld* is mid-toned with a moist fertile grey soil that is fertile allowing seeds to germinate above 5̊ c. Optimal growth occurs at 22̊ c but declines as it gets hotter. When the star has grown large enough to raise the surface temperature above 5̊ c, daisy seeds begin germinating and growing. In this initial cold stage, dark daisies are encouraged as they absorb heat and warm the surface, and light daisies discouraged as they reflect heat away and cool the surface. Therefore during this early stage dark daisies vastly outnumber the light daisies.

Over time the expanse of black daisies raises the surface temperature of the planet until it rises above the optimal growing temperature of 22̊ c. This encourages light daisies to grow and compete with the dark daises for space. Eventually the cooling effect of the light daisies will adversely affect surface temperatures until a steady ratio of dark to light daisies are established. The mean albedo ratio will be close to the level needed to maintain an optimal growing surface temperature for daisies. This ratio will vary seasonally as the planet is at the perigee of its orbit around the sun where light daisies will be encouraged and when the planet is at the apogee of its orbit around the sun where dark daisy growth will be encouraged.

The complexity of the model was increased with the introduction of herbivores (rabbits) and predators (foxes)[77]. This only added to an improved state of homeostasis. Plagues and disasters were introduced where up to 70% of the daisy population was destroyed bringing temperature changes as a consequence. However the system showed its robustness quickly returning to previous levels of affluence. Many other layers of complexity have been added to the model showing the system to be very adaptive.

The *Daisyworld* model shows that biological foresight is not necessary for regulation of the Earth, which can develop *"without any guiding hand of a creator". Daisyworld* also shows the cyclic nature of evolution that brings emergence and transformation. The model also demonstrates co-evolution or co-arising rather than the concept of *"survival of the fittest"* paradigm. *Daisyworld* is a holistic model operating along a heuristic that reductionism could not have determined, giving new perspectives about the evolution of systems.
The Gaia hypothesis offers a new way to look at the Earth as a whole without divisions into single disciplines, enabling new insights into the behavior of the biosphere, atmosphere, and physical aspects of the planet. The Gaia model may be a better way of understanding global warming rather than considering the problem through narrow sets of variables like temperature and greenhouse gas relationships. The Gaia perspective takes into account a much larger set of variables like the atmosphere, oceans, forests, and human settlement, etc., although it may not be as predictive as single and double variable models. Thus the heuristic of dependent origination seems to superficially fit the concept of Gaia. If this is so, then this demonstrates the cyclic nature of dependent arising outside of the problem of human suffering discussed in the *Dharma.*

The Solar System

There has been a great focus on the subject of dependent origination and quantum mechanics of late[78], but one only has to look as far as our local solar system to see the possibilities of dependent origination in action. Over the last 30 years our views have drastically changed from seeing the solar system as an empty and orderly system of planets orbiting the sun, to seeing the solar system as a dynamic environment[79]. The solar system behaves very differently to the Newtonian order[80] we once thought and is a much more chaotic, but at the same time is an interrelated and integrated environment. The actual physical properties and behavior of objects within the solar system are not so much determined by the intrinsic nature of the objects themselves, but more by their interrelationships and interconnections with other objects and dynamics within the solar system. This perspective has much more in common with the concept of dependent origination than the Newtonian view of the universe. The validity of dependent origination can best be demonstrated by looking at the formation of the solar system and the way the Earth is protected from threats by the solar system.

There are a number of hypotheses about the formation of the solar system. However observation of a number of young stars that had debris discs of dust surrounding them[81] has led to the wide acceptance of the nebular theory, originally espoused by Emanuel Swedenborg in 1734 in explaining the formation of the solar system[82]. This has since widened to apply to how the universe formed[83].

According to estimates the solar system began forming approximately 4.6 billion years ago as a giant molecular cloud which spanned light-years across[84]. The Sun formed as a result of gravity forcing gases and debris to clump together at the centre. Based on observation of protostellar nebula in other parts of the universe, the Sun formed inside a giant molecular cloud which collapsed. This formed a small dense core gradually growing from accumulating hydrogen which eventually turns into the sun[85]. The high inner temperatures drive out all volatile materials like water and some rocks, leaving behind only the elements like iron. This was surrounded by a hot gaseous nebula that undergoes a compression due to gravity into an equatorial disk full of debris which slowly rotates around the Sun[86]. At this stage the force of gravitational collapse creates energy. Once the Sun becomes

sufficiently large enough, hydrogen fusion begins. Through further collapses the clouds form rings and combine into small planetesimals of dust and ice that eventually to form the surrounding planetary system[87]. Some of the mergers of these planetesimals are extremely violent forming terrestrial planets close to the sun while in the other part of the solar system gases and ices combine to form the large gas planets[88].

Rocky planets tend to be formed in the inner part of the gaseous disk due to gravity pulling the denser materials inwards at a faster rate than the gases. Small planetesimals quickly gather mass by collecting other rocky material on their orbit around the Sun[89]. These growing bodies tend to dominate the inner planetary system, absorbing smaller planetesimals. Once the mass of these inner plantetesimals grows large enough to disturb the orbits of other plantetesimals, orbital eccentricities occur where conditions may become chaotic[90]. At this stage collisions may occur where only a few planets may survive. Tens of planetesimals may form a single planet with an equal number being thrown out into the far parts of the planetary system[91]. Many of the planetesimals from the asteroid belt may have brought water to the earth[92]. Richard Hoover of NASA postulates that life also came to earth with a meteorite[93].

Our observation of other solar system formations indicates that these gas planets are caused by viscous dissipation of turbulence[94] and the collection and subsequent inflow of gas into the forming planet[95]. Because these planetesimals are outside the planetary *snow line* and consist of ice, these bodies are able to trap gases and particles quicker and thus grow much larger than the inner planets[96]. The outer planets like Neptune and Uranus may have been in the vicinity of Jupiter and Saturn during formation, and started forming too late to collect large quantities of gas. These planets somehow drifted outwards to their present orbits over time[97].

The ultimate transformation of nebulae into planetary disks and later planets depends upon many different factors and mechanisms. If the gas giants form too early, they may prevent the inner planets forming by negating inner planet accretion[98]. If they form late the inner planet dynamic will be more violent maybe resulting in fewer but larger inner planets, leaving a larger asteroid belt[99]. If the large gas planets are close to the inner solar system, their force of gravity may eject planetesimals from the system completely[100]. In the case of our solar system Jupiter had minimal influence upon the inner planets because of the distance from the inner solar system[101]. In addition, if the star ejects materials through bipolar jets and powerful UV radiation ejects gas from the surrounding disks, and powerful radiation ejects dust from the disks, a planetary system may fail to form leaving just a remnant disk of dust and debris without any planets[102]. After the formation of the planets many planetesimals remain in the form of asteroids spread throughout the planetary system. Comets are usually remnants of planetesimals from the far reaches of the solar system that track close to the Sun on their orbit through the planetary system.

The Earth's distance from the Sun provides ideal conditions for life as we know it. A number of situations and forces assist in preventing dangerous threats to life on life. The size of the Earth is not too small as to have inadequate gravity to prevent the atmosphere escaping and not too large where the gravity would trap a large atmosphere composed of poisonous gases to life[103]. The atmosphere itself acts as protection against most meteorites that burn up due to friction when entering the atmosphere. The Earth's magnetic field generated by the movement of molten iron inside the Earth's core protects the Earth from solar flare and cosmic radiation[104]. The ozone layer at the edge of the atmosphere protects us from UV radiation. The outer planets, particularly Jupiter acts as a trap to capture comets travelling from the *Kuiper Belt* in the outer solar system inwards towards the Sun, just as Jupiter did in 1994 when it captured Shoemaker-Levy 9 comet[105]. The *heliosheath* is a bubble of charged particles where the Sun's solar wind that meets the solar wind from intersteller space that forms a bubble of charged particles at the edge of our solar system. This forms a shield which prevents cosmic rays from outer space entering our solar system.

Just like the Gaia hypothesis, the formation of the solar system happened without the need of a creator. It is more like a process of cosmic natural selection[106]. The solar system developed through arising and cause and effect, resulting in an *'existence'* built upon karma (action and reaction). As such the solar system is a self organizing system in continual non-equilibrium. This maintains a state of change and transformation within the guidance of a heuristic rather than any predictable mathematical formula.

The Economic Environment

The economic environment unlike the Gaia hypothesis and the solar system is almost totally constructed through human endeavour and enterprise[107]. Although the economic environment is a human creation, it is just as complex and beyond our full understanding[108] and control[109]. According to the Nobel Prize Laureate Friedrich Hayek, any central bank would not possess the relevant information about the supply of money, nor have the ability to use that information usefully[110]. The number of recent economic crises around the world stands as testimony to that.

The economic environment is an open dynamic system that all human life and endeavour takes place within. Thus the economy is a cultural environment that operates according to our values. For example, the American dream of owning a home has greatly influenced the structure of society in the United States where the housing and mortgage markets are extremely important facets of the economy. Peoples' values are often reflected in political values that influence policy and regulation. Thus the strong belief by political leaders in the free market led to minimal regulation in many economies of the world. In other countries where it is believed the state should play a major role like China, Cuba, and Vietnam exhibit a totally different structure to those economies of the Western world. Other economies in Europe and to a certain extent in Australia reflect the values of a welfare responsibility of the state and are structured yet differently again.

The economic environment is about behavior and how it is organized. The economic system is the means by which activity is redistributed. For example US and European industry has relocated to countries like China and India, changing the factors of production, market structures, organization of business, and social conditions in both the places it was relocated from and places it was relocated to[111]. The economic environment reflects power. Over the last forty years we have witnessed the transition of power from government during the Second World War, to labour in the 1960s[112], to business in the 1980s and 90s, and to the financial sector this millennium[113].
It is far beyond the scope of this paper to provide any in-depth description of the economic system. Only a scant sketch will be provided to demonstrate some of the dynamics the fit within the heuristic of dependent origination. Figure 3 represents an open economic system made up of households, firms and enterprises, government, factor and product markets, and the coupling with the overseas sector.

Households basically supply labour to firms in return for wages from which they purchase and consume goods and services. In addition to consumption, households pay taxes to government, save and make investments. Some households may directly through entrepreneurship develop some new ideas into an innovation that attracts consumption through adding some value to goods and services available in the market. In return households gain interest payments, and other repatriations such as deferred superannuation benefits from the savings and investments they make. Households also play a major role through their tastes and preferences in what is produced by firms. In a dynamic economy this is always shifting providing new opportunities in the marketplace for firms and enterprises to develop and exploit[114]. Household expectations as consumers also influence the level of activity of firms and enterprises.

Firms and enterprises produce products and services for households. They also produce for other firms and purchase goods and services from other firms through factor markets. Demand from households and other firms determine what a firm will produce in an open economy. Firms and enterprises also borrow and take equity through factor markets and make repayments on loans and repatriate profits through factor markets. Firms and enterprises pay taxes to government and receive services, infrastructure and subsidies back from government. A firm's ability and capability to produce is subject to the access to technology.

Two types of markets exist in any economy. Product and service markets provide products and services to households, other firms and government. What and how much to produce is directly influenced by demand in these markets. The level of demand will directly influence the level of economic activity. Taxes are collected by government and the government is also a consumer, supplies infrastructure and regulates the markets. Factor markets are basically markets where firms and enterprises acquire raw materials, capital goods, finance, and equity for maintaining operations. Households also supply labour through factor markets (traditionally organized through trade unions). Entrepreneurial skills can also be seen as a factor of production that differentiates products and services from other product and services, explaining diversity in this simple model.

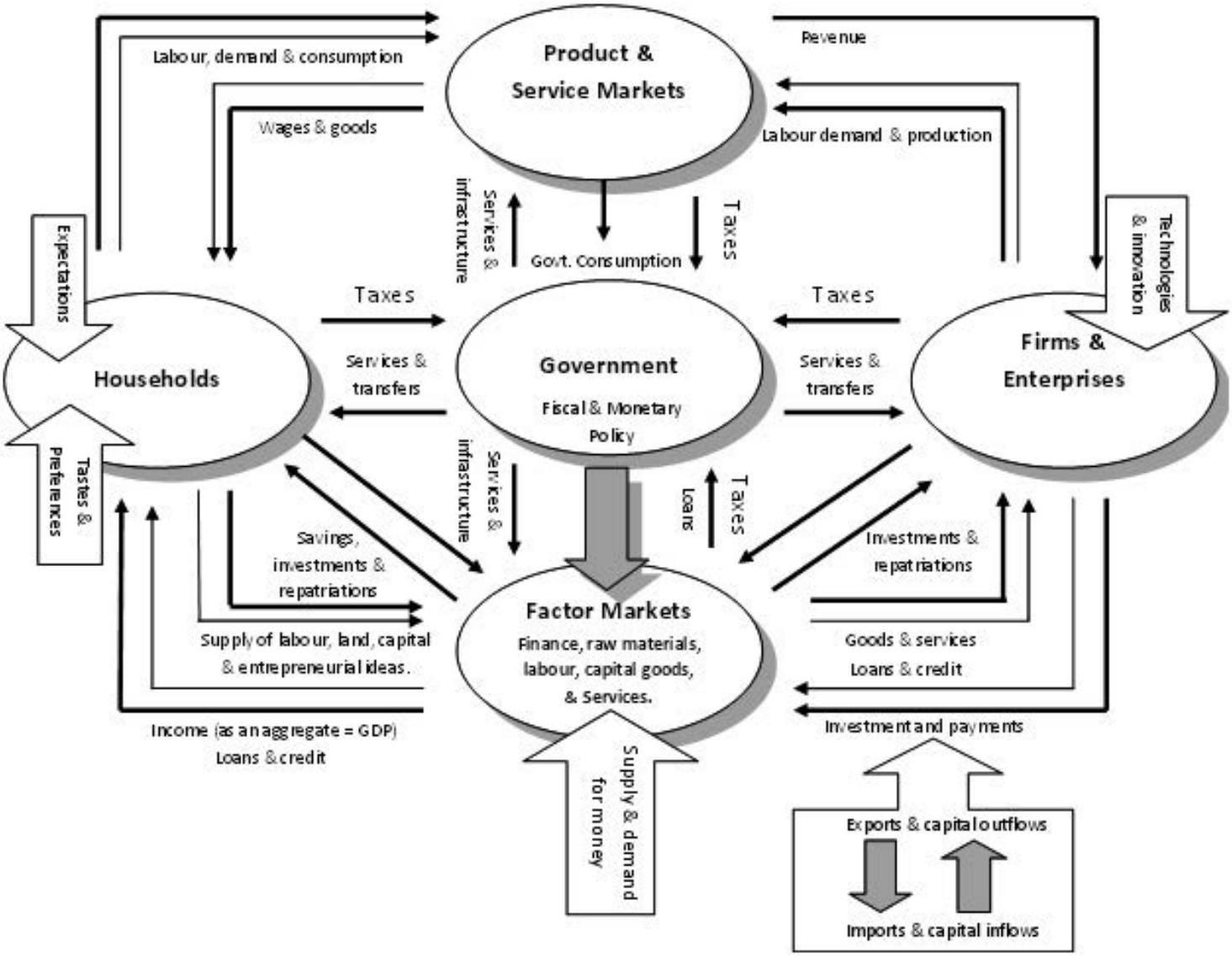


Figure 3. A representation of the economy.

The government plays multiple roles in the economy. The government is a major consumer of goods and services and the level of government consumption has great influence on the overall level of economic activity, *i.e., high consumption stimulates demand and low consumption dampens demand.* The government also supplies infrastructure which assists economic activity and national competitiveness. Through the provision of infrastructure, government's can stimulate employment and demand through what is called the multiplier effect[115]. Through taxation, governments also regulate demand, *i.e., lower taxes may lead to more consumption or saving), higher taxes may lead to less consumption or less savings).* Government can also regulate the economy through monetary policy where money supply and interest rates are regulated. This is usually undertaken by a statutory body like a central bank that makes decisions free from the influence of the executive government. Through setting relatively high interest rates, the demand for loans and finance will be generally dampened leading to lower levels of economic activity. However high interest rates may attract capital inflows which that put upward pressure on currency exchange rates, making exports less competitive and imports relatively cheaper than local goods. Lower relative interest rates may encourage more lending and boost demand, however capital inflow may decline due to better potential returns in other economies, putting downward pressure on exchange rates, but making exports more competitive and imports more expensive. Lowering interest rates at a time of high economic activity may raise the rate of inflation.

The economy is linked to the rest of the world through exports, imports and capital inflows and outflows. As

discussed above the currency exchange rate directly affects the competitiveness of exports internationally and price of imported goods in the domestic market. Capital inflows and outflows almost always directly affect the value of the currency. Central banks usually purchase local currency overseas when the exchange rate is under downward pressure to maintain currency value levels. However prolonged use of this method to maintain stable currency rates will drain a country's international reserves which are needed to finance the purchase of imports.

In this very simplistic view of an economy we are able to see that it is totally integrated and interrelated where each sector is co-dependent. One event or action will give rise to other events or actions in complex ways that are not easily easy to foresee. For example, changing exchange rates can potentially produce many different possible actions within the economy, but the end effect will depend upon a number of variables acting together, *e.g., the exchange rate may be influenced by overseas demand, capital inflow, the level of imports, the level of exports, and interest rates, etc.* Foreseeing potentialities would prove more difficult when one takes a reductionist view of the economy. There are no algorithms that can predict outcomes. The economy is a total system where looking at only one of the parts will not lead to a full understanding of what is actually happening.

Jared Diamond in his book *Collapse* looked at the cause and effect of conservation and the influx of retirees to Montana[116]. Diamond described how the beautiful scenery of the Montana plains attracted retiree settlers who wanted to maintain the pristine scenery through conservation. This lead to less land being available for farming and drove up land prices and taxation, which made it very difficult for locals to make a living through farming. The demographic changes occurring through new retirees settling in Montana led to community conflicts. Overall increased conservation led to lower economic activity where locals struggled to survive, and eventually many locals had to emigrate from Montana to find new livelihoods elsewhere.

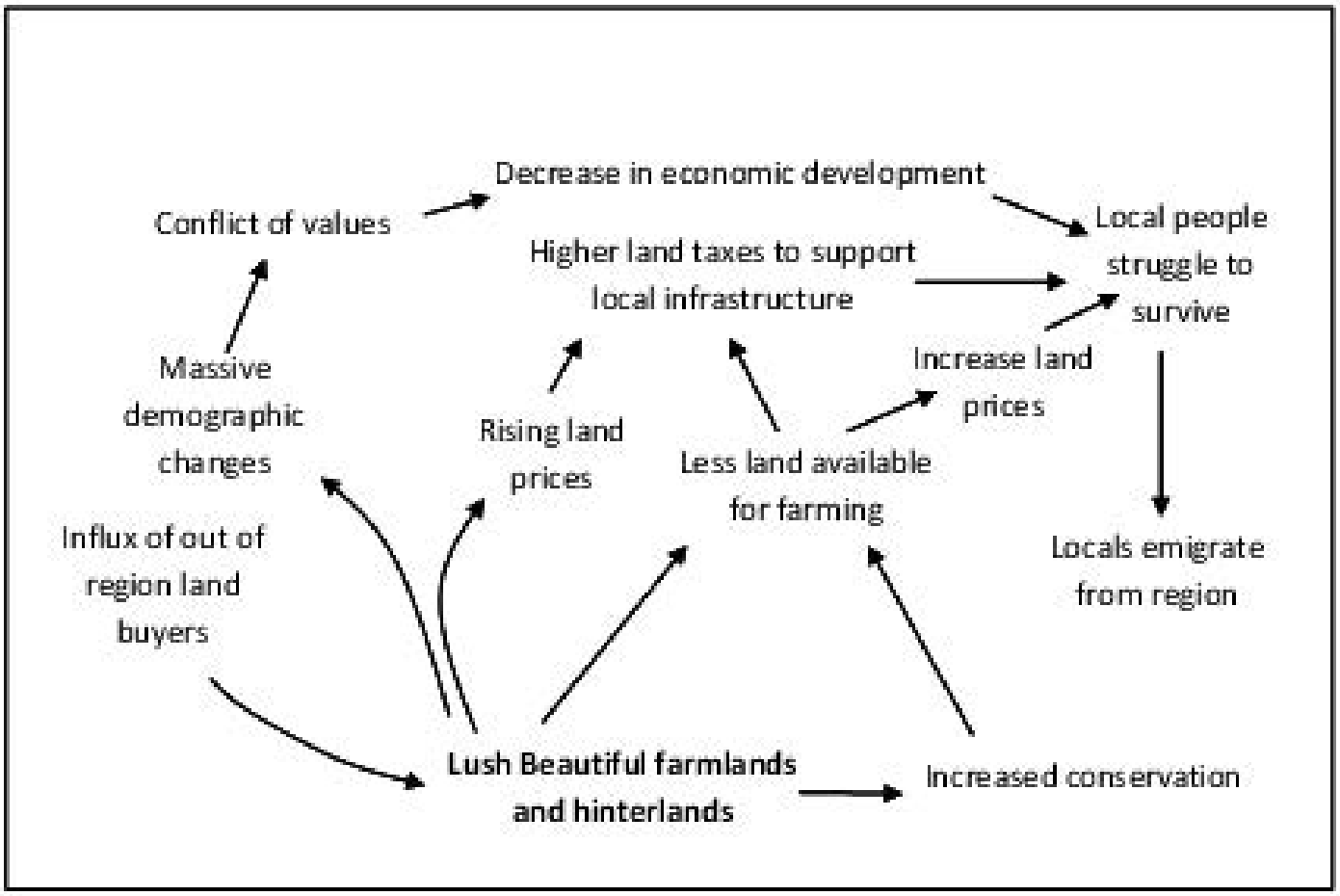

Decrease in economic development
Conflict of values
Local people struggle to survive
Higher land taxes to support local infrastructure
Massive demographic changes
Rising land prices
Increase land prices
Less land available for farming
Influx of out of region land buyers
Locals emigrate from region
Lush Beautiful farmlands and hinterlands
Increased conservation

Figure 4. A pictorial representation of Diamond's narrative on changes in Montana.

The Social Environment

The concept of dependent origination provides a structure by which we can observe social phenomenon. Dependent origination highlights duality within the social environment and is particularly useful for looking at how attitudes, values, beliefs, and assumptions evolve within society. Although the concept of dependent origination was applied to individuals by *Siddhārtha Gautama*, some sutras mentioned social issues[117]. Through a collective consciousness a mechanism that culture provides, dependent origination can be extended to the social level[118].

Our perceptions of others in society are relational and dependent upon other entities. Therefore the thoughts, emotions, desires, and the activities of others affect our perceptions. Our personal desires can be considered to be based on the *'relational gap'* between the observer and the observed[119]. Consequently events in society can be deemed to be co-arising, *i.e., one group's aspirations arise in relation to another group's actions, needs, wants, and desires.* Our personalities, motivations, realities, and behaviour are all connected to society through relatedness. We tend to act and behave according to our social identity, be that a parent, lover, husband, wife, child, teacher, engineer, or doctor, etc. The identities we exist within can be both a resource and a psychic prison in our outlook[120]. Our identities also exist within a *semiosphere* where all consciousness and mention projections are exhibited and reflected in the symbols, artifacts, and language created by society, reinforcing communication, behaviour and our state of relations between people[121].

All our actions that we undertake take place within a society which is a field. This field is where individuals interrelate and become a conditioned product of the field. However the field is also a product of our combined social actions. As our life develops in the field we become socially conditioned. We become embedded with ideas, needs, wants, desires, and aspirations. The whole society is built upon desire. We compete for grades at school, for our mates, in our career, and for social status. Our economic and political system is built upon desire, where we become delusional through believing desire is happiness. This state brings ignorance to the true nature of life where we become stressed and develop all sorts of anxieties and defence mechanisms to suppress these truths,

where we may develop psychic behaviours like paranoia, obesssive-compulsiveness, become attention seeking, depressive, schizoid, or narcissistic. Which bring dysfunctional behaviour both at the individual and institutional level[122]. We are a free agent but act according to our *'contrived self'* bounded by ignorance, clinging, and craving to what provides us with a sense of security and pleasure in life. Thus the *'contrived self'* has an ethical view of self interest and may practice all sorts of strategies to maintain their position in society.

Humans are well equipped to promote their self interests through their empathetic processes that can manipulate others. Recent studies on narcissistic individuals has shown that there are two types of empathy, affective empathy and cognitive empathy which involves the ability of people to see person's emotional state without being able to feel what they are feeling[123]. Lack of empathy can also be compensated by strategizing and spontaneous mentalizing to manipulate others to their advantage. These Machiavellian personalities don't necessarily feel the same emotions as those with empathy receive, so don't feel guilty when manipulating others[124]. This type of behavior can be seen in short-term mating strategies by males[125]. Political interactions are perpetuated by our Machiavellian mind. When considered through the dualistic nature that dependent origination predicts, one can consider political movements as phenomena arising and co-arising in reaction to other phenomena. Throughout history, the proletariat has arisen when feudal or industrialist existed, the educated professional had arisen when royalty rules, labor had arisen when the conservatives ruled, and fascism had arisen when communism existed. The view that power generates resistance popularized by Paul-Michel Foucault is supported by the dependent origination heuristic[126]. Events like the First and Second World Wars, the Vietnam War, Iraq, and the rise of radical Islam may be interpreted through existence and arising.

Society is created through a latent karmic imprint which formed the culture, language, customs, economy, technology, and everything else around. This imprint is the karmic potential of where society can progress and evolve to. This concept of karmic imprint could be equated to Bourdieu's concept of capital, of which four types of capital exist;

Economic capital – the level of financial resources, buildings, technology, and plant and equipment, etc,
Cultural capital – knowledge based on a shared history which equips the social agent with empathy toward for, or appreciation for, or competence working within the cultural rules and norms within the field,
Social capital – consisting of resources obtainable through connections and group networks, and
Symbolic capital – which include socially derived symbols like university degrees, or acceptance by social institutions within the field[127].

Capital is a major determinant of the capacity to exercise influence over the field and thus control our own future[128].

Event Phenomena and Entrepreneurial Opportunity

How entrepreneurial opportunity arises has never been fully explained. We can explain in detail how to go to the moon, land on it, walk around the surface and return safely but we cannot satisfactorily explain how people find opportunities. There is no generally accepted theory about how people see, discover or construct opportunities. It is still very much the unopened black box of entrepreneurial activity[129], yet to be fully understood. To date it has only been explained by anecdotes and fragmented approaches[130].

Dependent origination may be able to offer some perspective. Part of our Newtonian view of the world considers all events external to ourselves where we are just an observer. However the way that dependent origination has been expressed through the *Dharma* postulates the perspective of *inputational* or *imagining nature* where all independent entities in everyday life are ultimately illusionary. The physicist and philosopher Bernard d'Espagnat uses the example of a rainbow to describe the classical illusionary view of the world. A rainbow is not an object in itself, it is an illusion that we observe with the sun and raindrops there as a prerequisite. As we move the rainbow also moves and our view of the rainbow depends exclusively on our position. Thus the rainbow only exists because we are looking at it. The rainbow is a sensory imputation, a phenomena not independent of ourselves[131].

Reality exists because we are aware of it. If we extend this view of reality, then our observations also have a creative

impact on history, where not a single history exists, but rather multiple histories representing multiple realities[132]. The universe may just be one giant cosmic dream shared by all the world's inhabitants[133]. No phenomenon is a phenomenon until we observe it[134]. Thus the universe exists because we are aware of it[135], and entrepreneurial opportunities exist because we are aware of them. Opportunities are not independent within the environment, they depend upon a person to give them structure and character.

Entrepreneurial opportunity is about how we interpret reality. Any history or event can have a number of interpretations[136], all of which may contribute to our knowledge[137]. If we accept the concept of multiple histories through multiple interpretations, any of these interpretations can be projected into a kind of possibility, a future potential that can be actualized, which requires our personal sentiment to perceive, experience and project. Thus as Henry Stapp postulates, the connection between the physical and our knowledge is two-way, where knowledge is created through the selection made of what interpretation we desire[138]. Therefore as an observer-participant in the environment looking at all the vast array of potentialities, our perceptions of possibilities drift both backward and forward in time. Opportunity becomes a mix of what Bohm calls the *"implicate order"* and the actualized experience of the *"explicate order'* of the world, which becomes our reality. In this way what we implicate becomes explicate over time[139]. In terms of entrepreneurial opportunity, rather than passively observing reality, we in fact make our own realities.

It is our own awareness that materializes the physical world enabling us to see potential futures. The process of opportunity recognition is not dualistic as the person through their curiosity and attention has become involved with the environment. Our division between ourselves and the environment is a matter of social construction. It's about our relatedness with the environment of which we *'empathize'* through the view of our own self efficacy with the skills, competencies, capabilities, resources, and networks we have available at their disposal. We cannot be separated from the environment because when we are developing new business models and strategies we are already part of the environment. Therefore metaphorically through creating different opportunity scenarios, we are creating potential parallel universes. These become the narratives which enable different meanings.
What determines new opportunities is not seeing what others do, but seeing what others are not doing. Opportunities can come from various insights where; one can see improvements for existing products, new resources that can be made use of, new materials that can be made use of, new processes that can be made use of, possibilities for new products, possibilities for new ways of doing things, new ways to get a product to customers, new customers, technologies that can be used for different applications, and technologies that can produce existing products more efficiently and/or superiorly and even create new industries. Without curiosity our observations become lazy and complacent, and we only observe the familiar with what we have had a long association with.

Generally it is explained that opportunity gaps arise out of environmental change, driven by changes in the social, economic and technology conditions[140]. Government and regulation also create opportunity gaps through the allowance of certain things and the disallowance of others. Consequently changing laws and regulations are another source of product opportunities[141]. These are the environmental factors that together drive product, market and industry evolution. When a person looks at the environment there is a complex number of factors that need to be perceived and understood for meaning to occur. Each individual factor has a meaning and together with other objects creates complex field of inter-meanings. Any environment has the following factors;

A field,
Objects within the field,
Relationships between objects,
Actors,
Relationships between actors,
Events,
Relationships between events,

Relationships between actors and events,
Relationships between actors and objects,
Relationships between actors, objects and the field,
Relationships (or no relationships) between everything,
The situation,
Movements and stillness,
motives,
relationship between self and the actors, objects and the field, and
Interpretations of the above.

The environment can be seen in terms of the above factors to better understand their dynamics and inertia. There is the potential to discover connections between the various field elements. Where one can see interrelationships and trends, where movements and opportunities can be discovered and constructed. However when we are immersed within the system itself, it is hard to see the dynamism of the elements of the field and we act in a similar manner to others as we cannot see any change[142]. Our existing knowledge can constrain and keep us within our existing bounds of thought. It is only when a person can be aware of their own biases or mental models that they can see and think beyond it. When one is free of existing thought patterns, new connections between unrelated actors, objects, events and the field can be seen. Through imagination new potential realities can be formed internally leading to change in the existing mental models. This is the point where creativity flows and innovation may occur.

From the dependent origination perspective, any phenomenon will only arise in relation to another phenomenon, where everything is mutually dependent for existence. Therefore new opportunities are *'latent karmic imprints" i.e., seeing the latent potentiality that exists for some new reality,* that observer-participants perceive in order to trigger the creative action necessary to construct or discover new opportunities. All notions of causality and effectuality are actually manifestations of the mind rather than something out in the environment.

It is what exists in the past and present that guides what can exist in the future, as it is the past and the present that sow the seeds of potentiality for something in the future. Thus the future is guided by the *karma (cause and effect)* that has taken place to provide the range of possibilities. Thus for any opportunity to actually exist, it must be realizable. For example, the difference between Jules Verne's fantasy of man landing on the moon and the Apollo 11 moon landing is not vision, but available knowledge and technology, and a sense of national will and endeavor to achieve the goal. We are all dependent upon what has gone on before and the present to have specific potentialities. In this way our emergence is path dependent but not totally predictable.

We are also locked into the past through the grounding of knowledge we have. If we see all the past actions, events, knowledge, and experiences as something similar to Jungian archetypes, we are bound to repeat the past through using and mixing these archetypes repeatedly[143]. It is a unique mix of existing archetypes that creates innovation. Thus innovation is something bound to the past. The environment may be different but the behavior will be the same according to the archetypes we know. Opportunities are emergent from the realms of archetypes of the past, thus bringing the environment into endless cycles of repetition based on past knowledge and experience. Our emergence and evolution is thus cyclic according to the principle of dependent origination.

Consciousness and Self Concept

A person's perception continually ebbs and flows on a daily basis with changes in intelligence, knowledge and understanding, based on the type of emotions one feels and their individual strength, pull and intensity. This process makes a person happy, sad, excited, hesitant or anxious about people, objects and events around them. One may feel angry, greedy, jealous, trusting, lustful, and confused all in one day. More often than not, we are not aware of the influence of our feelings upon how we perceive things and behave, as this process is partly sub-conscious[144]. Feeling is what drives a person, whether it is to seek shelter and food, clothing and medical care, love and sex, career and comfort, etc. According to Buddhist Dharma *(theology)*, desire is a major part of our motivation and psych.

Within the *Abhidhamma Pitaka*, the last of three parts to the *Pali Cannon (the scriptures of Theravãda Buddhism)* are a number of texts concerning psychology, philosophy and metaphysics. The *Abhidhamma Pitaka* describes the structure of the human mind and perception with amazing accuracy to the accepted views of modern neuro-science. The mind is described as a continual conscious process or experience in the metaphor of a *'mindstream'* (something similar to phenomenological psychology)[145]. Buddhism sees mankind living in a deluded reality caused by infatuation, *attachment*[146] and clinging to desire for objects and permanence in the world as the source of all suffering. The pathway to wisdom[147] is found through understanding *'The Four Noble Truths'*[148]and practice of the '*Eightfold Path'*[149]. Many of these practices are being used in modified forms for therapy today[150].

Buddhist philosophy combines both consciousness and metaphysics in the concept of *Pratîtyasamutpada* or dependent origination. Reality is seen as an interdependent timeless universe of interrelated cause and effect. A human's existence is interwoven with the existence of everything else and the existence of everything else is interwoven with the human's existence in a mutually interdependent way. Because this concept is past, present and future, everything in the universe is only transient and has no real individual existence. This is a very important

concept because it is only our ability to free ourselves from attachment and delusion about our sense of self and values unconsciously placed on others, will we be able to see the world as it really is, rather than what we wish it to be. In fact our view of self and existence is created through our clinging and craving which blinds us to the reality of dependent origination. As we have seen, Buddhism is about transcending these delusions so human perception is clear and unbiased. This makes Buddhism an ethical philosophy of life, rather than a religion in strict terms[eu].

Since the beginning of the Twentieth Century, especially after World War II, there has been a growing interest in Eastern philosophy in the West. The teachings of the *Abhidhamma Pitaka* have inspired and influenced many psychoanalysts and psychologists[152], including Carl Jung, Erich Fromm, Albert Ellis, Jon Kabat-Zinn and Marsha M. Linehan. There has been a great leap forward in humanitarian and transpersonal philosophical influence both in therapy and management theories[153]. Dialogue between philosophy theorists and practitioners of East and West has led to mutually influential relationships between them[154]. This has led to new insights into therapies and new schools of thought on both sides[155]. Aspects of Buddhist Dharma are also incorporated in the works of Western philosophers including Caroline A. F. Rhys David and Alan Watts.

Buddhist doctrine of dependent origination pre-empted some of the most recent developments in neuro and cognitive psychology particularly in the way we experience ourselves and the affective processes behind how we create our self identity[156]. Dependent origination explains the forming of our personality, motivations, likes and dislikes, patterning and biases. Dependent origination answers the questions *"what do we really want?", "why do we want such things?",* and *"why do we act the way we do?"*

None of our wants are actually our own. Our wants and behaviour are conditioned within us from our upbringing by parents, schooling, religious upbringing, and exposure to society in general. Our actions come from within the bounds of our socialization and the choices we make are decisions based upon the stream of conditions surrounding us. Our self identity is made up of the sum of influences around us. A person is the result of feelings, thoughts, and emotions, both inherited and as the result of social factors. These states develop our biases, opinions, likes and dislikes, views, and knowledge, and thus we don't really have any true self identity. Consequently our self is really a delusion which we interpret as our desires and intentions based on our ignorance of *"I" and "me"* – a stream of physical and mental phenomena, constantly arising and ceasing, taking influence over our mind in a constant state of flux and change. Our clinging to the identity of *"I"* and *"me"* is our greatest defence mechanism we have to cope with change, and this is the basis of our self delusion.

At this point of the discussion it is important to mention that the concept of cosmic consciousness which is sometimes described as a collective consciousness that exists throughout the cosmos and often associated with Buddhism. Cosmic consciousness has been argued as a state that can be reached through the practice of meditation[157]. Jung described connection of all nature through the *'collective unconscious'*. Jung likens the external world to one of illusion, something similar to the world of *Maya* in *Hindu* theology[158]. Our egos *(jivatman)* are individual souls which are actually extensions of the one and only *Atman,* universal energy or God who allows an independent identity to manifest itself in part of himself. Through this we are all connected, independent, but interdependent. When we die we realize the illusion that we actually existed as we are part of God.

However the concept of dependent origination has no esoteric connections[159]. Dependent origination postulates that we have a common socialization through our culture, family and professional life and socialization with others which cultivates our biases, desires, values, beliefs, and assumptions. There is no known transcendent consciousness, only metaphorically through socialization and genetic inheritance. Our identity is related to the world around us, to others through identity paradoxes like *rich-poor, have-have not, high status-low status, lucky-unlucky,* and *winner-loser, etc.* People pursue their daily lives from the framework of their meaning system. We live in a structured world. Our reliance on value systems has more in common with Bordieu's field and habitus theory

than cosmic consciousness[160]. We are guided through cultural and social logic and our subjective experiences, not by causality but by co-arising[161], which makes behavior less predictable. Daily events we participate in and observe don't rely upon the laws of physics however they are predictable enough to have rule of thumb predictions to guide daily life. The human psych is the result of millions of repetitions of thoughts and acts. A person is not really made, he or she becomes and is still becoming, predetermined by his or her own choice, thought, and act, which becomes habit. People don't always move towards a single goal or objective, they continually change direction .This is the effect of emotions.

Consciousness is a process that emerges from the interactions within our brain, body and environment; a multidimensional process with a rich variety of properties. Consciousness is thus changeable, related to interaction with people, objects and the environment, reflects our moods and feelings, and is both situational *(where we are in the world),* and phenomenological *(about what we experience)*[162]*.* Our emotions are part of our consciousness and also our window and connection to the world. All our experiences are subjective therefore entities have a subjective existence that is ambiguous. Consciousness is thus a phenomenological arising due to mutually dependent activities and without arising conditions there is no consciousness.

According to the teachings of dependent origination it is the ability of the brain to categorize what we perceive in the environment that gives meaning. Without the ability to categorize, we would have no cultural or social realities. And it is the very system of categorization the brain utilizes that gives arise to our desires, wants, and cravings. The paradox here is that our perceptions via our emotions are actually non-existent but imaginary - however through imagination they exist. This is consistent with Benjamin Hoff's concept of the social construction of identity, relying on our mental maps and stereotyping of people, objects, and events to provide meaning;
"A man noticed that his axe was missing. Then he saw his neighbor's son pass by. The boy looked like the evil while he walked and behaved like a thief. Later that day the man found the axe where he left it before. The next day the neighbor's boy walked past and walked like a well behaved and good boy."[163]

When we perceive something our cognitive system identifies it and our emotional system gives it value. Thus the way one interprets the world will be the way one acts in the world. Humans act towards people, objects and events based on meanings they assign to people, objects and events. Our social interactions are based on conditioned responses based on our beliefs and assumptions. Meaning arises through the interpretation of social actions that we encounter. Therefore no absolute meaning exists - it is negotiated through interaction with others and perception of events modeled by our thought processes[164]. Our reality is based on social interaction.

Buddha's parable of a king who invited a group of blind men to identify an elephant shows that our understanding is based on perspective. One feels the tail and says it is a rope. Another grabs the leg and says it is a pillar. Another feels the side and says it's a wall. Another felt the head and said it was a water jug, and so on. We try and understand the world through the narrow perspectives we have. This leads to our ignorance and habitual behavior that uses up all our attention and energy. Only when one can transcend the influence of their ego is one able to see the through the influence of their emotions[165].

The Ethical Standpoint

The principle of dependent origination applies to all things: *Dhammaniyama* the natural law of cause and effect; *Utuniyama* the natural law pertaining to physical objects (physical laws); *Bijaniyama* the natural law pertaining to living things and heredity (biological laws); *Cittaniyama* the natural law governing the workings of the mind; and *Kammaniyama* the law of karma which is of particular importance in determining human well being and is directly related to behaviour from an ethical perspective. According to the Buddha we all have the same mother and father, namely the interconnection of the aggregate which are made up of soil, water, energy, and wind. In this universe everything is a blood relative and we are all born from the same womb of mother earth. If we look at the Gaia hypothesis and dependent origination[166], we see that ethics from the environmental point of view is about nothing more than survival. Ethics are about how to survive as a human species. The implied ethical argument from dependent origination: Dependent origination is NOT about causality, it is about interdependent relationships. Therefore our sense of ethics comes out of interdependent relationships - *i.e., the need to co-exist.*

Our ethics is thus conditional to our awareness. Without other entities and this *'knowing'* we cannot exist as an identity. The need to co-exist and the need to survive are at the root of all choices. This is coupled with awareness where there are higher order ethics of compassion and humility, which are greater than the self. The meaning of life exists through our inter-connectiveness with those around us, our community and the world. All entities exist because of mutual independent relationships.

Dependent origination highlights the paradox between our free will and our social/cognitive conditioning. There is action, there is consequence. Ethics through a dependent origination framework can be seen more as a process rather than a code or set of rules to follow. This has been confused by some of the paganistic ways Buddhism today is displayed in as a means for good health, prosperity, and success in business, *etc.* Buddhism has also been overlaid in ritual.

Due to our interconnection with everything and powerlessness to control (not destroy however) requires solutions that work in harmony with the environment. This applies to everything. Our appreciation of scientific knowledge

to date has only been to serve our own interests - *i.e., our relationship with the environment has been concerned with trying to derive as much resources as possible with little regard for the consequences.* From the dependent origination viewpoint, worldly goodness is embedded in the ego and the teaching of morality requires the existence of a person. The existence of a person will have some motivations (ego) and cannot be purely altruistic, *i.e., even religion treats blessing afterlife as a motivation.* Therefore most people adhere to morality because of habit and lack of intention. Morality is situationally based on ego and the assumption of continuing existence. A person can be ethical but at the same time not be free of suffering and delusion[167]. Morality doesn't necessarily eliminate greed, hatred and delusion[168].

Morality is an outward expression and doesn't necessary reflect inward on the true person, thus we have morality without spirituality, thus not developing the person. One must have a mind above good and bad, pleasure and pain, merit and demerit,. in this way it is possible to eliminate dissatisfaction or suffering. Consequently dependent origination is in no way associated with morality which infers eternalism, which depends upon a theory of existence of the self[169].

Humans cling to humanity itself and society's beliefs as protection from fear and anxiety. This is where unethical practices develop from, *i.e., desire and greed etc*. Usually people cling to morality in order to have minds that are peaceful because of the goodness they do. This can last as long as causes and conditions of their goodness do not change - but where change underlying selflessness *(annatta)* causes suffering *(dukkha)* because one clings to the action of goodness. Therefore knowledge of morality is not enough to serve as a refuge. Sensual attachment is a powerful force in the world and bonds families and even nations together[170]. Views form through society and religion where we are become attached to rituals, rites and beliefs, *etc.* Furthermore we are attached to the idea of self where we believe in a separate self. Attachment to opinions requires introspection to detect. For this reason necessary to continually amend our views making them more correct - changing false views into closer views to the truth. This differs from religion which teachers the dominance of man[171]. From the perspective of dependent origination, doing good is not enough. We must be free of desire[172]. This is different to other religions. It requires insight to break from this.

One of the greater causes of karma is the human race's belief in itself which leads to various forms of action and consequences, environmentally, socially, politically, entrepreneurially. Ignorance is connected to so many actions. Many of the models we act upon are deluded in the assumptions they employ leading to consequences like the 2008 economic crisis, the Iraq and Vietnam wars, the First and Second World Wars, and degradation of the environment, *etc*. From the dependent origination perspective this is at the centre of the world's problems. In fact looking from this perspective we see that little human behaviour is based upon rational foundations. The power of primal instinctive belief in self is with us from birth and the basis of all our politics[173].

Descartes and later Locke moved away from the centrality of God in making moral decisions to emphasize the freedom of the individual for managing their own decisions rather than looking for outside guidance. This reflected a person's freedom from bonding to traditional beliefs and superstition[174]. Most great thinkers have relied upon thinking and reasoning to conceive various principles for well being and humanity. All these principles based on speculations which don't help anybody gain insights. Morality became acceptable behaviour according to generally accepted social standards during each time and place. As this is a cultural phenomenon acceptable behavior would cause no stress to others and self. People who seek pleasures and power are generally those that have no higher sense of values and can easily disregard community accepted standards.

The phenomenon of operating as a *moral hazard* to others appears to be becoming more acceptable and even legal in society today. Some institutions may be able to make certain decisions and take actions that escape responsibility and accountability for their behavior, which may be reckless to others[175]. Too many individuals, firms, and institutions are able to manipulate circumstances to their own advantage without transparency, which has been cited as a reason behind the US mortgage crisis of 2008. Many large financial institutions in the United States gave out risky mortgage loans to customers that would provide potential large returns. However the financial institutions didn't have to

carry the full burden of their losses as they were bailed out by the US government[176], which resulted in taxpayers shouldering the burden of risky financial decisions made by faceless people within the financial institutions[177]. As a consequence some argue that the financial system is structured in a way to encourage *moral hazard* behavior as financial institutions are able to operate with the knowledge that they will get bailed out if necessary[178].

Today some may argue that corporate management may make reckless decisions because shareholders are unable to observe the actions of management on a daily basis and that management can present the firm in a positive light that is misleading at annual general meetings of stockholders[179]. In addition a manager may be personally protected from the consequences of the poor decisions he or she makes. This can occur through tenure in positions, anonymity, nepotism, or scapegoating[180]. Or where no clear lines of responsibility or accountability exist for given decisions. Overly high remuneration packages of senior corporate executives have been criticized for allowing a *moral hazard* phenomenon occur because of guaranteed bonus payments free of any performance criteria[181]. The above leaves the situation where managers may act in self interest rather than in the interest of the shareholders[182]. Holding companies that have no assets of their own can make reckless decisions that may aggrieve people. In this case the aggrieved have very little recourse as the company has no assets that can be utilized as compensation[183]. This type of corporate structure is legal, even though it may very easy facilitiate a *moral hazard* phenomenon.

Industry self regulation in many industries since deregulation during the 1980s may have let institutions with opportunities to take advantage and escape accountability[184]. There is also a certain amount of government policy decision making where decisions of national importance have been made without disclosing all the facts to the public[185].

At the individual level, many people are given credit high card limits that encourage reckless spending without considering the consequences of high personal debt. This contributes to the high personal debt levels of people today[186].

According to Buddhist *Dharma* we don't know the true nature of things and thus we follow our ideas or follow the generally accepted ideas of society around us. We tend to act according to the emotions generated when our senses come in contact with objects. To act with wisdom, feeling must not be allowed to brew up and give rise to craving[187]. Dependent origination is more than morality which is relative truth, it is the absolute truth[188].

The first essence of action is intention and motivation. It is about avoiding arrogance and self importance through understanding that having importance is nothing of real value, not having any contaminating elements within the mind to allow true mental freedom without emotions, likes and dislikes[189]. There is the risk of becoming attached to goodness and thus doing things for the wrong reason. Our karma formation or the *mental path of destiny* we take depends upon our dominant narrative[190]. *'Goodness'* must be transcended to achieve a state of wisdom.

Thus the first action is intention and motivation. We must be motivated by insight rather than any desires. Intuitive wisdom is not rational thinking. Intuitive wisdom can only be gained by means of a genuine inner realization. Looking with tools and paradigms through their particular epistemologies are limited in what meaning they provide. Thus it is important to be able to think outside these models. Perhaps this concept of wisdom has analogies through the concept of learning organization developed by Peter Senge,*"where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together"*[191]. Such organizations according to Senge will be able to face the rapidly changing environment with flexibility and adaptation, driven by peoples' willingness and capacity to learn at all levels. However current organization structures and form are not conducive to learning and people although having great capacity to learn, do not have the tools needed[192].
Senge believes that people want to be part of something bigger than themselves to grow and this is where they have opportunities to*'re-create'* themselves. The prevailing method of learning in organizations is *adaptive learning* focused on survival, but for a learning organization there must also be *generative learning*, organizational *learning disabilities* can be overcome. Generative learning requires a mastering of five disciplines;

Systems thinking; seeing the world and events as a whole, where forces behind them are related. This helps us to see relationships and helps us to see how to change things effectively with minimum effort, i.e., to find *leverage points* in the system. This has a lot of similarities with the concepts of *dependent origination.*
Personal mastery; the process of continually deepening and enriching our personal visions, the focusing of energies, developing patience and seeing reality objectively. *Personal mastery* could be considered a product *of the 'Eightfold Path'.*

Mental models; are unconscious metaphors of how we see things, which influence how we act. If we can understand how we see things, we are in a better position to see reality more objectively. Mental models are about wisdom and *right mindfulness*.

Building shared vision; to develop a shared picture which will create commitment, rather than just compliance by individuals. Building shared vision is about *right intention*, *right action*, *right effort*, and *right concentration*[193], and

Team learning; is the ability of the group to rid themselves of their assumptions and begin to think together. This must be done openly without anyone trying to win. *Team learning* is about the journey that the *'Eightfold path'* takes a community.

These disciplines can be focused towards seeing wholes, rather than parts, seeing people as active participants, rather than helpless reactors and to creating the future, rather than reacting to the past. Understanding is a rational reasoning and insight is concentrated introspection. However one must be sure that feeling is not mistaken for intuition. The hierarchy of thinking is shown in figure 5. below.

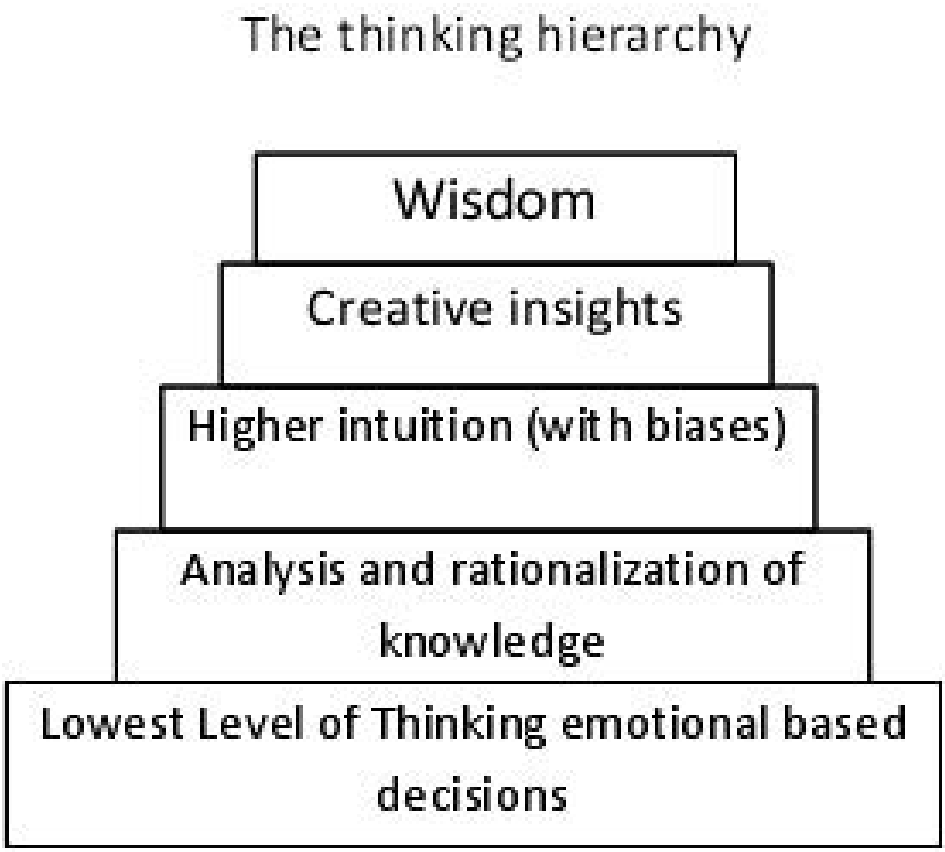


Figure 5. The thinking hierarchy

What is important under the Buddhist *Eightfold Path* is a coded ethical structure but the ability to apply humility, compassion, and righteousness, the characteristics of a true self to aspects of everyday life[194], and in this way wisdom is a form of creativity. Wisdom is about interpretation and application rather than the following of specific codes.

Most lower level human thinking is based upon our emotions which originate from our limbic system at the base of the brain. Many of these emotional responses are *hardwired* into our thinking system and concerned with our primal needs and survival, as well as mateship. We answer specific situations based upon the emotions embedded within out mental schema and upon subsequent appraisal of the situation determine the intensity we will respond to the situation with our emotions[195]. Learned *'core related themes'* are believed to influence this automatic appraisal process[196]. Therefore higher order emotions are social constructs. To be angry, disgusted, humiliated and proud are moral positions[197]. These social emotional positions are coded into memory schemata and they become automatic responses[198]. These socially related emotions will also have some relationship to the basic core emotions[199]. Without our specific awareness of the play these emotions make upon our judgments, decision making will tend to be emotionally based. Sometimes this becomes difficult to determine as these basic emotions mix with other emotions to produce very complex social emotions[200]. They become our responses to meaning, which we confuse for meaning itself.

We live in a rational society where the world is run by time, logic, reason, and *"objectivity".* Everything is measured and designated within the spirit of Weber's *rational bureaucracy* and Frederick Taylor's *scientific management.* Our education system is based upon rationalism, promoting specialized disciplines and critical thinking. Therefore people tend to approach problems through the paradigm of reason and rationality. Facts are required before *"informed decisions"* are made. Facts and knowledge are paramount prerequisites to decision making. Within the rational society, ethics are the based on codified laws and religious dogma with penalties attached to certain types of behaviours as a deterrent. Therefore in the rational society one acts out of fear and *"logic"* within a heavily socialized and cultural framework. Thus all solutions are *"culturally based"* solutions and according with the Buddhist point of view, they are of the wrong intention.

To handle the enormous amounts of incoming information and perform the decisions that have to be made requires some form of mechanisms that can *'short-cut'* the interpretive and decision processes[201]. Heuristics and biases are a means to achieving this and as a consequence have an influence on our perception and reasoning. Heuristics assist decision making under uncertainty because of insufficient information from the environment. Heuristics and other biases compensate and thus assist people in solving problems, developing new ideas, and seeing potential opportunities that others don't[202]. They also influence how we look at ethical problems ethics and how we develop strategies[203].

Heuristics are *'short-cuts', 'rules of thumb'*, decision rules or templates that aid quick judgments and decisions. Heuristics become embedded within our belief system. They can also be influenced by our deep motivations and reflect our social conditioning. Heuristics and other biases become intertwined within our knowledge structures and become a factor of influence in the assessments, judgments and decisions we make involving opportunity evaluation[204]. These basic assumptions include views about time, space, human nature, the nature of relationships, and what is the truth[205]. They are part of the decision making process[206]. In effect heuristics are our programmed system of *'common sense'*.

Heuristics have the potential to assist the decision making process by cutting down on the person's information load[207]. They allow a person to make quick decisions about problems and opportunities without undertaking formal analysis which would tend to highlight problems, thus preventing its exploitation[208]. Heuristics are important when windows of opportunity are very short[209]. They also help in making quick strategy choices, saving time and adding to flexibility. Heuristics make up for lack of experience[210] and drive intuition, which is independent of inputs from

the cognitive perception process[211]. This will trigger off the creativity process by imposing an alternative reality to what is perceived through the senses.

Creativity and in particular creative insights are an extremely important aspect of our thinking styles. Without creativity, very little would develop, function and contribute to the wellbeing of the humanity. The concept of creativity is elusive, cannot be observed directly, measured or even acknowledged until sometime after the creative act has taken place[212]. Relatively little research has been undertaken on creativity until the 1960s[213]. However within the last three decades there has been a massive serge in research, new theories and the development of many creative tools.

When a sub-conscious connection between two bits of information fit a problem, a realization that brings a feeling of insight occurs. This illumination is often described as the *'aha'* or the *'eureka'* moment. This insight may not bring the whole solution of the problem but perhaps provide a key piece of information that enables the problem to be restructured, reorganized, reframed, reconstructed or reconsidered in some now light, where a solution comes forward with relative ease. In hindsight the solution will normally be a simplistic and logical one, ironic given the difficulty in arriving at the insight. A simple block or misplaced assumption that was removed during the incubation and sub-conscious contemplation process made way for the insight to occur[214]. Accepted prior knowledge of a domain and field can sometimes block an insight, especially where knowledge is accepted as a given and not previously questioned.

Insight is the example of a product produced through our brain's self organizing system which begins to associate external information from the environment, our domain and field knowledge and our prior experience held in the long term memory. This may operate in a similar manner to the way we combine words into phrases, phrases into sentences and sentences into ideas and stories to create meaning. Imagination may also play some role in creating vision and imagery and assisting in drawing analogies during this process[215]. The insight is the product of the connection between these bits of information in some sort of semantic, conceptual or visual form, which assists the advancement of the problem solving process[216]. Any meaningful connection of ideas will immediately flash into our conscious memory as an insight previously not considered in regards to the problem.

Recent research has shown when individuals are left undisturbed the brain is not idle, where there is actually increased activity, localized in the pre-frontal cortex[217]. The brain during any resting period is actually quite vigorous, where without any stimulation the mind freely wanders through past recollections, envisioning future plans, and other thoughts and experiences[218]. This phenomenon was termed the 'default network' to describe the brain activity at rest[219]. The significance of the 'default network' to the creative insight is that continued underlying processes still occur that are unrelated to conscious thought occur, something described in the incubation process mode of the creativity process[220]. Research has shown that mindfulness can activate the 'default network'[221]. The 'default network' deactivates is active when an individual is at rest and shuts down when an individual becomes active and is focused on the outside world.

At the top of the thinking hierarchy is wisdom, a thinking process that is only achieved by a small percentage of the population after many years of experiencing life (see figure 6.). A person's awareness or mindfulness transcends the lower emotional influenced thinking, social interpretations, to a level where one thinks about issues and can develop new personal understandings. This comes from our emotional sensitivity which runs across a continuum from *mindlessness* to *mindfulness*[222]. Mindlessness numbs individuals' senses to the outside environment and patterns them into seeing situations as absolutes[223]. Whereas mindfulness is a state of psychological freedom without any attachment to any point of view and being attentive to what is occurring at present[224]. Many peoples' emotional sensitivity is inhibited by their past categorizations, rules and routines that cloud the ability to view any current situation with novel distinctions[225]. Therefore the more mindful a person is, the more open to the environment they will be.

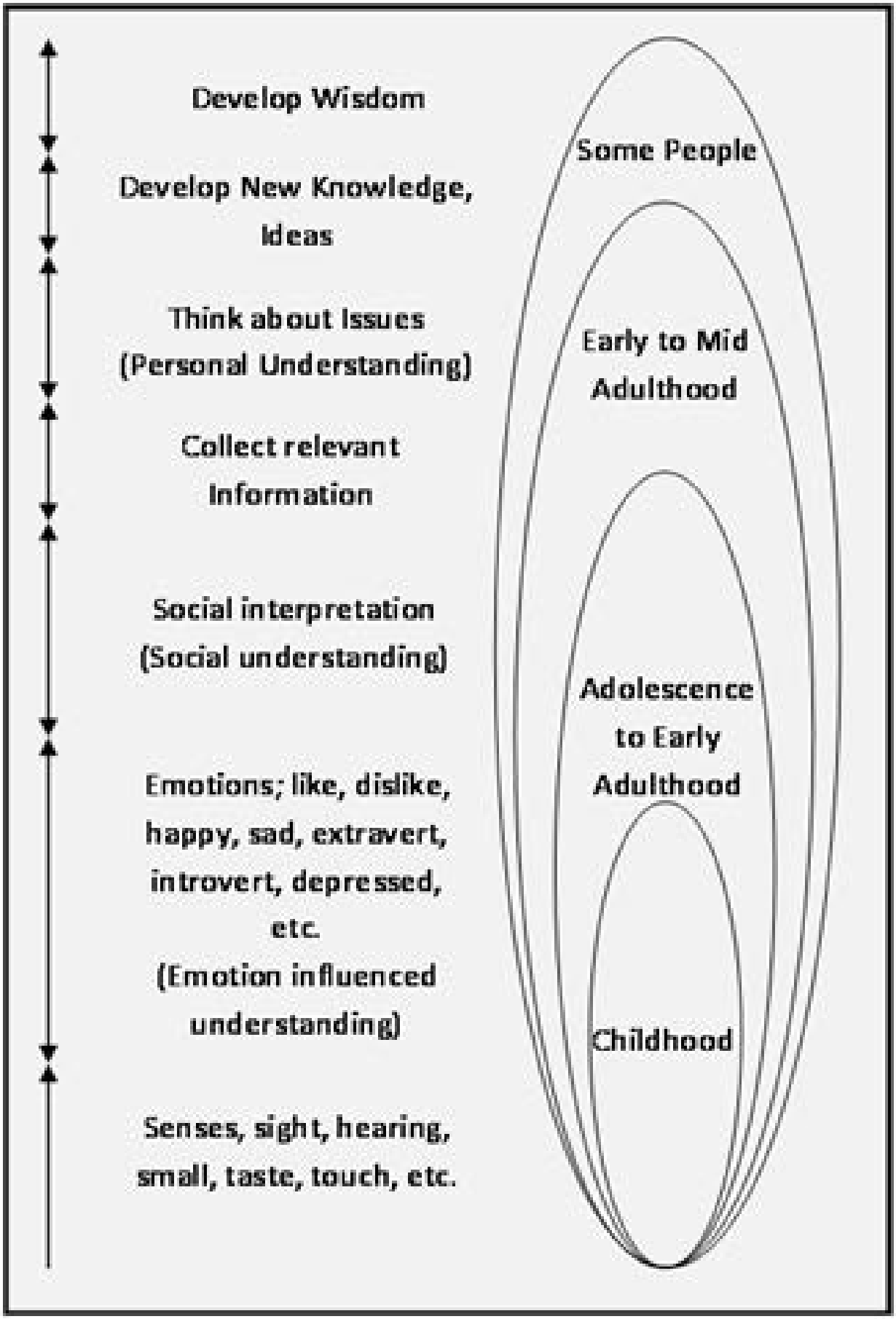

Develop Wisdom
Develop New Knowledge, Ideas
Think about Issues (Personal Understanding)
Collect relevant Information
Social interpretation (Social understanding)
Emotions; like, dislike, happy, sad, extravert, introvert, depressed, etc. (Emotion influenced understanding)
Senses, sight, hearing, small, taste, touch, etc.
Some People
Early to Mid Adulthood
Adolescence to Early Adulthood
Childhood

Figure 6. The continuum of wisdom.

Mindfulness allows a person access to environmental perceptions without schema blocking or altering the interpretation of events. The more mindfulness, the better the perception of opportunities, however other facets such as prior knowledge are still vitally important, which without any individual will not be able to perceive opportunity for new ventures, products, and services[226]. Langer proposed that mindfulness may enhance the ability to perceive and shape new opportunities through five components that have been empirically tested;
Openness to novelty – the ability to reason with relatively novel forms of stimuli,

Alertness to distinction – the ability to distinguish minute differences in the details of an object, action, or environment,

Sensitivity to different contexts- tasks and abilities will differ according to the situational context,

Awareness of multiple perspectives – the ability to think dialectically, and

Orientation in the present- paying attention to here and now[227].

One would assume that the degree of mindfulness an individual possesses will also influence the depth of meaning that can be derived from the environment. New discoveries may occur because of emotional sensitivity and mindfulness described above in what could be called a *'passive search'[228],* where an individual is receptive but not engaged in any formal systematic search.

Thich Nhat Hanh stated that every feeling whether good or bad, powerful or light should be paid attention to with mindfulness that can be used as a force to protect the psych. This has two important implications[229]. The first is to be aware of our own biases and distortive tendencies in our perception of objects. The second implication is that we protect ourselves from harmful influences and *'emotionally'* learn. Psychotherapy advocates a healthy ego which requires some *'healthy attachment'* like identification in the creation of a sense of self[230]. Das expands on identity as being something we experience spiritually, sexually, sensually, intellectually, economically, philosophically, and so on[231]. Identity is situationally dependent upon the role one plays as a mother, father, worker, student, etc. However from the Buddhist perspective, this can lead to an ego produced out of mistaken identity, based on anxiety and confusion about *'who I am'[232]*.

John Bowlby's seminal work on attachment theory defines attachment as one of the prime motivational systems with its own workings and interfaces with other motivational systems[233]. What may be important is understanding desire as a driver of motivation[234]. Thus some attachment is considered to be a healthy part of a person's psychological make-up, a driver for action. However it should be noted that the motivation behind our actions is usually desire, which unchecked can develop into many abnormal pathologies like depression, anxiety, aggression, etc[235]. It is not the desire that causes the suffering, but what we do with our desire. People need to feel secure and have loving relationships to provide a base for life exploration, which requires some attachment. Michael Porter also recognized that emotional attachment can influence rationality of strategic decision making where one may be committed to a business, have a sense of pride, be concerned about the stigma attached to a decision, identify with the program or venture, etc[236].

A true understanding of the concept of attachment and detachment from the Buddhist perspective may have been lost in the semantics of translation, especially with the institutionalization of most of Buddhism's doctrinal interpretations. Modern Buddhist and psychology scholars with the benefit of hindsight have added new perspectives by taking more liberal semantic interpretations of translations providing new insights[237].

*Dharma s*eeks to make us aware of the emotions one is attached and clinging to so that we can be freed from the suffering it produces. We make sense of the world we see through the filters of our own attachments which distort reality. Griffiths used a very useful metaphor of a mirror that cannot reflect light because of dust that has settled

upon the surface clouding any clear view[238]. So Buddhism and psychoanalytic-theory may assist in helping one see the manifestations of attachment and their underlying causes. The task is to let go of the distortions of perception created through sub-conscious attachments. This means understanding illusion from biased judgments, aversion, prejudice and greed in us and seeing the environment for what it really is. Buddhist Psychology provides a non-linear model for seeing a non-linear world. According to Freud, one is *…."in danger of never finding anything but what he already knows: and if he follows his inclinations he will certainly falsify what he may perceive*[239].

We in adulthood have become a product of our own eyes, prisoners of our own mind, observing things with a construed reality[240]. Our attachment to thoughts, feelings and experiences continually reinforce and strengthen our narratives and rationalizations. In modern Western psychology the tool to remedy distortion is termed cognitive reconstruction. One can learn to recognize weaknesses in beliefs, dysfunctional emotions that produce irrational thinking and resulting behaviors like stress, depression and anxiety, etc. Once these emotions are seen, and the motivations behind them are recognized, one can take responsibility for them. Then one's cognitive streaming can be changed, which will allow one to freely explore their internal and external worlds without the distortions of attachment and clinging. This may require changing cognitive streaming that has developed from early childhood.

The second aspect of wisdom is the ability to apply it to everyday situations. Thought experiments are a tool of wisdom. This requires personal mastery and the mental tools to utilize the creative sensitivity one has. Thought experiments can be used to challenge existing ways of thinking, confirm a way of thinking as a new theory or hypothesis, extrapolate ideas further under varied conditions, explain the past, and assist in foreseeing any consequences of particular courses of action. Thought experiments assist in developing new insights about the nature of events and situations and have been very important in developing many scientific hypothesis by some of the great thinkers including Galileo in conceptualizing gravity and Einstein in conceptualizing the special theory of relativity. There are many different types of thought experiments that can be utilized[241] and usually some specific issue such as the ethical, moral, strategic, or operational issues of a situation is focused upon. Thought experiments rely on our imagination to think through action and consequence, and unbiased thought processes to be able to arrive at potentially useful conclusions. It is the ability of a person to utilize this method of thinking that leads to wisdom in everyday life.

Conclusion

Werner Heisenberg and Albert Einstein spent most of their professional lives searching for the possibility of a universal or absolute truth. However they both postulated that the point of observation itself interferes with the view of reality, *i.e., from certain vantage points light behaves like a particle, at other vantage points light behaves like a wave. Therefore is light matter or energy?* The theory we use determines how we observe of the event[242]. This also occurs when we observe how we organize ourselves[243].

Usually theories are confirmed through the *"law of large numbers"*, where these approximations are empirically proven. But some causes of laws cannot be seen like gravity, which we can only confirm through experiencing the symptoms, *i.e., the discoverers of new planets in other solar systems don't actually see the planets.* Many processes are not fully deterministic due to randomness and uncertainty, *i.e., tsunamis and earthquakes.* To understand some concepts one cannot think about the laws as they are too defined and definite to provide the reality of any situation. Many theories are not positivist or instrumental and therefore are not predictive, *i.e., we are not sure how to predict earthquakes although we know that in probability when one is due in a particular area or region.* So when we talk about the next potential earthquake for San Francisco or Tokyo, our biases set in – we think according to our beliefs with distorts any truth. Understanding dependent origination requires a special type of intuition with a flowing imagination that does not rely on language as a *"medium of meaning"*, as language is too restrictive.

Any theory is just a paradigm of reality, a window through which to see the world. Our personal meaning can be attributed to the various levels of our consciousness or self awareness. As emotions are so important to our own identity, we look at the world through the window of our own emotions. This meaning is part of our consciousness of *"I"* and *"me".* Thus emotions become our theories of how we derive meaning within the world. This becomes a paradox as our emotions give meaning and our behaviour puts that meaning into the environment in a cyclic phenomenon, *i.e., our anger from what we perceive influences action within the environment, where reactions of others appear to justify the original perception of meaning – the escalation to war, the escalation to divorce, the escalation to hate, the escalation to disappear.*

Dependent origination provides structure rather than chaos as a paradigm to understand the environment. Dependent origination is a structured framework to understand the dynamics and interrelationships within the environment. Dependent origination is a way of seeing. We can understand ourselves as a conditioned part of the embodied disposition associated with any phenomenon. The environment imposes presence and defines our path and possible behaviours according to our conditioning and situation. There is a latent potential inherent *logic*, *pattern*, or *system* in place that will support the *life-flow* within the environment. Understanding this structure is beyond our cognitive abilities and requires imagination without language. We are observer-participants because this inherent *logic* through culture is also part of us. Without wisdom we are fated to conduct ourselves within this *logic* without consciously knowing of it. Thus this *logic* is a barrier to our wisdom. Such an example on a social scale was the US Car industry unable to change strategy with the arrival of the energy crisis in 1974, new competition from Japan in the late 1970s and changing customer environment.

We view the world through our own narratives which hold us back on understanding the environment. Within the doctrine of dependent origination as taught within the *Dharma* there is no place for such views in gaining awareness of our experiences within the world[244]. This prevents personal mastery and wisdom when one keeps to their personal story of the world.

Our bonding with people, objects, and events is a dualistic one in nature. Everything has a value through our emotions placed upon it, and this becomes the basis of our interaction. For example, we view relationships through a framework of emotions which can unite, separate, and aggravate a person depending upon the sets of emotions associated with the relationship. This implies a deep set of values which are the cornerstone of co-existence and mutual survival. *"I love you and you love me"* represent strong emotions of affection and mutual union. *"You no longer love me"* creates emotions of separation, loss and aggravation. *"I beg you to come back"* represent desperation and a sense of distress and even grieving.

Thus imagination without language may take us to a spatial domain where the environment, life and meaning becomes a broadly painted impressionist canvass, where meaning is represented by brushstrokes, patterns and layers. The picture becomes and emerging one with people, objects, and events appearing and disappearing as the story continues. Shades represent emotions which can be changed continuously. This transient nature of the canvas metaphorically shows that reality is continually changing and there is no room for logic to interpret it. Reality may just be an aspiration which can change immediately upon new brush strokes being added to the picture. The canvass just becomes revised and revised providing new insights upon existence and meaning.
Dependent origination is about creativity and personal mastery. To understand the environment one must be able to pre-existing conditions, what one is doing in relation to these conditions, and the results that come from one's actions[245]. This requires attention, concentration and awareness[246]. This requires reframing the Four Noble Truths to 1. Understand the nature of life, 2. Know how humans behave, 3. Be objective, and 4. Integrate these principles into what we do. The *Eightfold Path* shows how to attain the right skills, utilize the right knowledge, immerse oneself in the right knowing, where the right view arises[247]. This leads to the right resolve (motivation), to the right speech (narrative), and to the right action[248].

Dependent origination is not nihilism. Within dependent origination there is the inherent meaning of co-arising or co-dependence of which is the very basis of our existence. There is no permanence, only the effects of arising out of co-existence, developing by virtue of causes, and ceasing with the cessation of these causes. The world is a perpetual flow of natural forces incessantly interacting and changing[io]. There is not emptiness as meaning relies upon relatedness which is the root of all meaning[249]. No phenomenon, no individual form of life can exist independently of others[250].

Dependent origination provides answers to questions such as what is knowledge? To what extent can knowledge grow? Assuming one accepts the definition of knowledge to be the same as the definition of reality. Our knowledge begins with perception - which is coordinated with our personal reflection on the outside world. How we reflect is of upmost importance to the meaning we derive.

It could be argued *Siddhārtha Gautama* be seen as one of the most profound scientist/philosophers of our humanity rather than a spiritual figure. *Siddhārtha Gautama* not only offered us insight into cognition some 2500 years ago that is now only being appreciated in the relatively new discipline of cognition, but he also offered a paradigm to see the environment that is forming some of the bedrock of how we view various disciplines, environment and social systems today.

The depiction of the pregnant lady within the *Wheel of Samsara* may actually be providing optimism if the metaphor is interpreted as humanity is open to all sorts of potential and possibilities rather than emptiness. On a final note, this is only the writer's interpretation. The concept of dependent origination is subject many interpretations among the Buddhist scholars. The intention here is to create awareness and future discussion on the concept.

Notes and References

(Endnotes)

1 *Pali Tipitika* S.II.28,65

2 Also termed as *dependent arising, conditioned genesis, dependent co-arising, or interdependent arising.*

3 The *Buddha* is a title for the first awakened.

4 Blomfield, V., (2011), *Gautama Buddha: The life and teachings of the awakened one,* London, Quercus, P. 4,

5 Batchelor, S., (1997), *Buddhism without Beliefs: A contemporary guide to awakening,* New York, Riverhead Books, P. 5.

6 Sangharakshita, (2004), *Living with awareness: A guide to the Satipatthana Suttra,* Birmingham, Windhorse, P. 61.

7 DeGraff, G., Thanissaro Bhikkhu, (1996), *The Wings of Awakening,* Barre, MA, The Dhamma Dana Publication Fund, P. 21.

8 Wienburg, S., (1992), *Dreams of a Final Theory,* New York, Random House, P. 51.

9 Buddhadāsa Bhikkhu, (1992), *Paticcasamuppada: Practical Dependent Origination,* Bangkok, Vuddhidhamma Fund, P. 4.

10 Capra, F., Steindt-Rast, D., & Makus, F., (1991), *Belonging to the Universe: Explorations on the Frontiers of Science and Spirituality,* San Francisco, Harpers.

11 Chao, Y., S., & Midgley, G., (2007), Toward a Buddhist Systems methodology 1: Comparisons between Buddhism and systems theory, *Systematic Practice and Action Research,* Vol. 20, No. 3, pp. 167-194.

12 DeGraff, G., Thanissaro Bhikkhu, (1996), '*The Wings of Awakening',* Preface viii.

13 Smolin, L., (2006), *The Trouble with Physics: The rise of string theory, the fall of a science and what comes next,* New York, Houghton Mifflin Company.

14 Dawkins, R., (1989), *The Selfish Gene,* Oxford, Oxford University Press.

15 Lovelock, J., (1979), *GAIA: A new look at life on Earth,* Oxford, Oxford University Press.

16 Hunter, M., (2012), *Opportunity, Strategy, & Entrepreneurship: A Meta-Theory, Volume 1,* New York, Nova, P. 255.

17 Buddhism is concerned more about the conduct of life. The Pali talks about vedic deity which implies the highest and noblest form of life. *i.e., "Bramhmacariya" – the conduct of vedic behavior (This also shows the influence of Vedic Hinduism upon Buddhist philosophy)*.

18 Hawking, S., & Mlodinow, L., (2010), *The Grand Design: New Answers to the Ultimate Questions of Life, London, Bantam Press.*

19 Brown, M., (1949), *Natural Philosophy of Cause and Chance,* New York, Dover Publishers.

20 Darwin, C. (1859). *The Origin of Species by means of natural selection on the preservation of favoured species in the struggle for life,* London, John Murray.

21 Even the concept of complexity is relative to the number and nature of actions we are comparing our perceptions with.

22 Winnicott, D., W., (1967), *The Child, the family and the Outside World,* Reading, MA, Addison-Wesley.

22 Even the conditions around our body are experienced through relatedness. For example, if you have been working outside on a hot day and go inside to an air conditioned room, upon returning outside the heat will feel unbearable. Initially the feeling was neutral, but only when one experiences comfortable conditions will the hot conditions outside become a conscious burden. In Buddhism this is important to the concept of suffering or *dukkha*. Relatedness and comparison as the basis of emotions like greed and envy.

23 Taken from Hunter, M. (2009), *Essential Oils: Art, Science, Agriculture, Industry & Entrepreneurship:*

A focus on the Asia-pacific region, New York, Nova Scientific Publishers, P. 355.

24 Feynman, R., (1995), *Six Easy Pieces,* London, Penguin Books, P. 110.

25 A good example of amplification and suppression might be a company's sales. For example certain factors like population growth, rising per capita incomes, advertising, word of mouth, and more accessible channels to reach the public may amplify a firm's sales growth. However, a situation of decreasing population, loss of spending power though unemployment, increasing competition, and/or the arrival of new technologies may suppress the growth of sales.

26 DeGraff, G., Thanissaro Bhikkhu, (1996), '*The Wings of Awakening',* P.300.

27 DeGraff, G., Thanissaro Bhikkhu, (1996), '*The Wings of Awakening',* P.301.

28 Gharajedaghi, J., (2006), *Systems Thinking: Managing Chaos and Complexity: A platform for designing business architecture,* Amsterdam, Elservier, P. 119.

29 Forrester, J., W., (1971), Counter intuitive behavior of social systems, *Technology Review,* Vol. 73, No. 3, pp. 52-68.

30 Wolfram, S., (2002), *New Kind of Science,* Wolfram Media, Inc., online at: http://www.wolframscience.com/

31 The belief that in the beginning there was *nothing*, does not have any foundation in dependent origination. This thinking can be seen as an attachment to concepts as the truth is unknown, and implies the existence of a creator. This view of the world means that humankind cannot seek solutions by wishing or praying to *'the gods'.* There is no such thing as luck, there are no aimless accidents as there is a seemingly endless process of evolution going on.

32 The Buddha taught the concept of karma in the pretext of human suffering, where emotions like greed, envy, anger, and other psychotic emotions perpetuate one within one of the realms of samsara. See Hunter, M. (2012), *Opportunity, Strategy & Entrepreneurship: A meta-Theory, Volume 1,* New York, Nova Scientific Publishers, pp. 255-266.

33 Something like the current potential between the positive and negative nodes of direct current electricity. It takes a wire of something that can conduct electricity to realize the potential connecting the two terminals.

34 Time is a relative measure of one point against another.

35 Payne, R., (2006), Individual and Awakening: Romantic narrative and the Psychological Intepretation of Buddhism and Psychotherapy, In: Unno, M. (Ed.), *Buddhism and Psychotherapy Across Cultures: Essays on Theories and Practices,* Boston, Wisdom Books, P. 36.

36 Suffering can be seen as clinging to delusions that distort reality, and the craving and desire, *i.e., unsatisfied desire* for objects in humans that also delude people. Suffering also includes aspirations for wealth, a better life, fame, reputation, and the defense mechanisms or *"psychotic thoughts and behavior"* used to maintain one's self identity. Aspirations for wealth, fame and a better life may lead to hard work, generosity, where discipline and concentration may be present. There may also be motivating factors like an afterlife in religion, where all these factors lead to unknown and complex outcomes. However according to the teaching of *paticcasamuppada* these motivating factors are all based on ignorance which cause suffering. See Buddhasa Bhikkhu, (2007), *Handbook for mankind: Realizing your full potential as a human being,* Bangkok, Amarin Publishing (Translated from the Thai edition by Aniyanada Bhikkhu Roderick S. Bucknell), P. 65.

37 The doctrine of *paticcasamuppada has been the subject of much debate and interpretation.* This explanation of dependent origination is based on Buddhadāsa Bhikkhu's interpretation. See Buddhadāsa Bhikkhu (1992), "*Paticcasamuppada"*

38 See Buddhadāsa Bhikkhu (1992), "*Paticcasamuppada"*, Preface.

39 These delusions become personality traits. A person may also have difficulty in discriminating between being helpful and helpless, harmless and harmful, and taking sustainable and non-sustainable actions, etc. Some people maintain *'good conduct'* due to civil and religious codes. However these actions, although positive are seen in Buddhism to lack inner purity.

40 The word *'consciousness'* is often confused with *'rebirth consciousness'.*

41 Tashi Tsering Geshe, (2006), *Buddhist Psychology: The foundation of Buddhist thought, Vol. 3,* Somerville, MA., Wisdom Publications, P. 26.

42 See: Tejguru Sirshree Tejparkhiji, (2006), *Detachment from Attachment – let bliss succeed, let sorrow fail,* Bombay, Tej Gyan Foundation.

43 Cognition, sight, hearing, etc, entail physical properties and mental processes, and these function according to our consciousness, feeling and volitional impulses. Body and mind must function with the relevant senses interacting with the world. These senses operate in accordance with the mind and bodily states of the person. This is influenced through previously acquired experience, which in turn serves the intention of the volitional impulses. For example when thoughts are influenced by anger, the arising perceptions as a result will be correspondingly negative. The stance of the body will follow the emotional stance of the person. Thus body and mind are interdependent. Consequently there are no thoughts divorced of emotions, *i.e. seeing and smelling a rose evokes emotions.* Objects are thus not independent of feelings. The body follows the disposition of the mind. Intentions alert the state of the senses, *i.e., the sportsman is primed to do what has to be done on the field.* All events occurring and mental dispositions are important to karma. This is a period where people develop delusional resolve about issues.

44 With no knowledge or awareness of the truth, no clear understanding or wise reflection on experiences, the result will be confused thinking based on delusion or imagination based on false beliefs, fears, and accumulated character traits. This conditions how one thinks, speaks and acts. Examples are believing in ghosts, and believing in human control of the environment. We most often mistake the behavior of others with different meanings to what was intended, leading to wrong ascertainments and conclusions.

45 For example a coastal foreshore area can be understood as a hinterland of resources by a geologist, a backdrop for a landscape scene by a painter, a potential location for settlement by explorers, a place for children to play, and a romantic place to walk by couples; all deriving meaning through context, need, aspiration, and experience. The environment embodies multiple realities through the conditioning we have where meaning is based upon the context of individual and society.

46 One could argue this with the reasons given for US commitment in both the Vietnam and Iraq wars. Much marketing theory is based on this premise. See: Hill, D., (2010), *Emotionomics: Leveraging Emotions for Business Success 2nd edition,* London, KogenPage.

47 This has many similarities to some of the concepts in Freudian Psychoanalysis. See: Wallin, D., J., (2007), *Attachment in Psychotherapy,* New York, The Guilford press, P. 31.

48 Metzner, R., (1997), The Buddhist six-worlds of consciousness and reality, *Journal of Transpersonal Psychology,* Vol. 28, No. 2, pp. 155-166, Engler, J., (1993), Becoming somebody and nobody: Psychoanalysis and Buddhism, In: Walsh, R., V., (Ed.), *Paths beyond ego: The transpersonal vision,* New York, G.P. Putman & Sons, pp. 118-121, Engler, J., (2003), Being somebody and nobody: a reexamination of the understanding of self in psychoanalysis and Buddhism, In Saffran, J. D., (Ed.), *Psychoanalysis and Buddhism: An unfolding dialogue,* Boston, Wisdom Publications, pp. 35-86., Epstein, M., (1995), *Thoughts without a thinker: psychotherapy from a Buddhist perspective*, New York, Basic Books, Epstein, M., (2007), *Psychotherapy without the self – a Buddhist perspective,* London, Yale University Press. .

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50 For a discussion on the various types of attachment and delusion see: Buddhadasa Bhikkhu (2007), *"Handbook for mankind".*

51 Vajiranana, M., (1962). *Buddhist meditation in theory and practice*, Colombo, M. D. Gunasena & Co., Ltd.

52 Freud, S. (Ed.). (1926). *Inhibition, Symptoms and Anxiety*. (1964 edition, Vol. 19), London, Hogarth Press.

53 Tashi Tsering Geshe, (2006), "*Buddhist Psychology",* P. 54.

54 In this case the six realms *(5 in Theravada Buddhism)* inside the links of *Paticcasamuppada* can be seen as metaphors for various *'mind-states'* one experiences during life. For example, fear could be the state of *asura,* hunger and yearning the state of *peta,* stupidity the state of *tiryagyone*, etc. The depicted realms can be correlated to psychotic pathologies (See: Buddhaghosa, (1991). *The Path of Purification (Visuddhimagga), 5th Ed*., (translated by Bhikku Ñãnamoli), Kandy, Buddhist Publication Society). Existence in each realm creates a different sense of self (See: Mitchell, R. W. (1993), Mental Models of Mirror-Self-Recognition: Two Theories, *New ideas in Psychology,* Vol. 3, pp. 295-325) reflecting distorted views of their own ego (See: Moacanin, R. (1986). *Jung's Psychology and Tibetan Buddhism: Western and Eastern Paths to the Heart*, Boston, Wisdom Publications), leading to certain types of behavior. Unless one can break free of their karma, one is trapped into moving between these different realms or *'mind-states'.*

55 Even the Buddha used *"rebirth"* in metaphorical terms.

56 Erikson, E. H. (1968). *Identity: Youth and Crisis,* New York, Norton.

57 Collin, A. (1990). Mid-life career change research, In Young, R. A. and Borgen, W. A. (Eds.), *Methodological approaches to the study of career,* New York, Praeger Publishers, pp. 197-220.

58 Hunter, M. (2012), Opportunity, Strategy & Entrepreneurship: A Meta-Theory, Vol. 1, New York, Nova Scientific Publishers, P. 336.

59 Even some teaching proposes that a soul is a being which floats around or moves through existence, birth, and rebirth. For example, under *Mahayama* teachings there exists a storehouse consciousness of inborn templates designating how to perceive the world resulting from one's karmic history *(bijas). Bijas* combine with *naman* to form an ego or collective consciousness, thus creating conscious illusions of everyday life.

60 However it does not stop there. To become a bodhisattva (monk) one must work to assist others to escape the cycle of suffering with pure altruistic aspiration with deeds that lead to the six perfections of giving, ethics, patience, effort, concentration, and wisdom. See: Wright, D., S., (2009), *The Six Perfections: Buddhism and the cultivation of character,* Oxford, Oxford University Press.

61 Sopa, G., & Hopkins, J., (1976), *Practice and Theory of Tibetan Buddhism,* New York, Grove.

62 There is no *"I'* or *"me"* in *paticcasamuppada*. Therefore no birth and death takes place, and as a consequence there are no deeds from past lives that influence the present.

63 Napper, E., (2003), *Dependent Arising and Emptiness: A Tibetan Buddhist Interpretation of Madhyamika Philosophy,* Boston, Wisdom Publications, P. 31.

64 Gethin, R., (2008), *Sayings of the Buddha According to the Pali Canon,* Oxford, Oxford University Press, P. 210.

65 Connelly, C. (2012). Time keepers to introduce leap second June 30 to keep in synch with mother earth, *HeraldSun.com,* January 6th, http://www.heraldsun.com.au/technology/time-keepers-to-introduce-leap-second-june-30-to-keep-in-sync-with-mother-earth/story-fn7celvh-1226238221924

66 This is similar to the Heraclitus *Flux Doctrine* where *..."""a man can never stop a river force. The river has changed and it is a different river, and man has changed and he is a different man."*

67 Dependent origination as taught by the Buddha lacks detail and is extremely superficial. There is no moment by moment analysis of physical phenomena, nothing strong enough to lay as a theoretical template across any discipline.

68 Lovelock, J., E., (1979), GAIA: A new look at life on Earth, Oxford, Oxford University Press, see Preface.

69 Lovelock, J., E., (1972), Gaia as seen through the atmosphere, *Atmospheric Environment,* Vol. 6, No. 8, pp. 579-580, Lovelock, J., E., & Margulis, L., (1974), Atmospheric homeostasis by and for the biosphere – the Gaia hypothesis, *Tellus,* Vol. 26, No. 1, pp. 2-10.

70 Lovelock, J., E., (2001), *Homage to GAIA: The life of an independent scientist*, Oxford,

Oxford University Press.

70 Lovelock, J., E., (2005), *Gaia: medicine for an ailing planet,* London, Gaia Books, P. 22.

71 W. Ford Doolittle and Richard Dawkins criticized the Gaia hypothesis on a number of grounds. Firstly, living organisms cannot act altruistically and work together to regulate the environment. Doolittle added that environmental regulation would require foresight and planning which organisms are incapable of. Dawkins also said that Gaia cannot exist because it cannot reproduce, so there cannot be any natural selection of planetary worlds. See Harding, S., (2006), *Aminate Earth: Science, Intuition, and Gaia,* White River Junction, Vermont, Chelsea green books.

72 Benzinger, T., H., Pratt, A., W., & Kitzinger, C., (1961), The Thermostatic Control of Human metabolic Heat Production, *Proc Natl Acad Sci USA,* Vol. 47, No. 5, pp. 730-739.

73 Watson, A., & Lovelock, J., E., (1983), Biological homeostasis of the global environment: the parable of Daisyworld, *Tellus,* Vol. 35, No. 4, pp. 286-280.

74 The albedo effect refers to the reflective ability of a planet due to its colour. The lighter the planet's colour, the more reflective it will be and the darker the colour the more absorptive it will be. Therefore a black planet reflecting no light will have an albedo ratio of 0.0, and a white planet reflecting all light will have an albedo ratio of 1.0. This directly affects the surface temperature of a planet, *i.e., the balance between the heat it receives from the sun and the heat it disperses back into space.* On the earth this is much more complex with the presence of an atmosphere and the resulting greenhouse effects. However at polar caps the majority of heat is reflected back and in oceans and forests heat is absorbed and slowly radiated out into the atmosphere.

75 Lovelock, J., E., (2000), *The ages of Gaia: A biography of living Earth, Oxford, oxford University Press.*

76 Ricard, M., & Thuan, T., X., (2004), *The Quantum and the Lotus: A journey to the frontiers where science and Buddhism meet,* New York, Three Rivers Press, Smetham, G., (2010), *Quantum Buddhism: Dancing in Emptiness – reality revealed at the interface of quantum physics and Buddhist philosophy,* Brihton, Shunyata Press, Wallace, B., A., (2010), *Hidden Dimensions: The Unification of physics and consciousness,* New York, Columbia University Press.

77 The solar system was once thought to be of clockwork precision governed by the laws of physics where everything was completely predictable and deterministic. This view was based on Newton's law of motion and gravitation. For a history on the evolution of the Newtonian view of the world see: Dolnick, E., (2012), *The Clockwork Universe: Isaac Newton, the Royal Society & the birth of the modern world,* New York, Harper Perennial.

78 The Newtonian ordr could be described as 1. A separation of consciousness and matter, 2. The universe seen as a motion of objects, 3. the space between objects is empty and flat, 4. There is only one absolute universe, 5. The universe is predictable, and 6. The universe will eventually die as energy depletes and runs out, becoming inert.

79 Smith, B., A., & Terrile, R., J., (1984), A circumstellar disk around Beta Pictoris, *Science,* Vol. 226, No. 4681, pp. 1321-1424.

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85 Montmerle, *et. al.,* (2006), "Solar system formation and early evolution".

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90 Sean, R., N., Quinn, T., & Lunine, J., (2007), high-resolution simulations of the final assembly of earth-like planets 2: Water delivery and planetary habitability, *Astrobiology,* Vol. 7, No. 1, pp. 66-84.

91 Hoover, R., B., (2011), Fossils of Cyanobacteria in C11 Carbonaceous meteorites: Implications to life on comets, Europa, and Enceladus, *Journal of Cosmology,* Vol. 13, accessed at: http://journalofcosmology.com/ (15th may 2012).

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106 Paul Krugman in a rewriting of his book "*The return of Depression Economics and the crisis of 2008"* written in 1999 recalls the great depression and other crises during the 20th century and points out the lessons that we have not learned. Krugman, P., (2009), *The return of Depression Economics and the crisis of 2008,* New York, W.W. Norton & Company.

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109 Hunter, M., (2012), *Opportunity, Strategy, & Entrepreneurship: A Meta-Theory, Vol. 1,* New York, Nova Scientific Publishers, See: part 1 of chapter 2.

110 Trade unions rose in strength and power after the Second World War. The trade union was an important part of the economy with great influence how industry was organized and operated. In the United States this came from the *"New Deal"* philosophy that President Roosevelt introduced during the 1930s.

(see: Schweikart, L., & Doti, L., P., (2010), *American Entrepreneur: The fascinating stories of the people who defined business in the United States,* New York, AMACOM, P. 307.). Trade Unions also grew in post war Europe and Australia with supportive governments, but all began declining in the 1960s and 1970s with many stand-offs with strike actions, leading to the conservative free market philosophies of Thatcherism and Reaganism in the late 1970s and early 1980s.

111 See: Sorkin, A., R., (2009), *Too Big to Fail,* New York, Penguin.

112 Hunter, M., (2012), *Opportunity, Strategy & Entrepreneurship, Vol. 1",* P. 3.

113 Keynes argued that the multiplier effect was important in keeping economies out of recession through activities that raised government spending in the economy in ways that would increase aggregate demand. Keynes stipulated that any increased government spending must not just be substitution for other expenditures but additional expenditure that would stimulate additional demand which would in turn lead to further employment. However if resources in a country where already fully employed, extra government spending would lead to inflation and increased imports. See: Keynes, J., M., (1933), *The Means to Prosperity,* London, Macmillan, P. 10.

114 Diamond, J., (2005), "*Collapse",* pp. 56-59.

115 The *Agganna* [D.III.80-98] mentioned humans against humans, the *Cakkavatti* [D.III.58-79] mentioned humans and society, and the *Vaseththa* (Sn.594-656] mentioned the human environment. See the *Agganna* as an example of social explanation, the *Cakkavatti* about the arising of crime and social ills.

116 Personality and behaviour are derived from the interaction of our cognitive processes and social interaction. Under dependent origination our senses are interconnected to the environment which creates the self through defilements. One is born free of negative forces but through social interaction way of life and reality is created. All good and bad things in the world are created through the mind.

117 The *relational gap* could be considered the difference between who I perceive *'I am'* and who *'I want to be'. "Who I want to be'* is influenced by what one perceives in the environment which leads to the incubation of our wishes, desires, and aspirations.

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127 Fiet, J. O. (2002). *Systematic Search for Entrepreneurial Discoveries,* Westport, Quorum Books.

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129 D'Espagnat, B., (2006), *On Physics and Philosophy,* Princeton, Princeton University Press, P. 348.

130 Hawking, S., & Mlodinow, L., (2010), "*The Grand Design",* P. 83.

131 Kaufman, M., (2008), Shining a light on a dream: *What is quantum physics fundamentally about?* The

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132 Wheeler, J., A., (1978), The past and the delayed-Choice Double-Slit Experiment, In: Marlow, A., R., (Ed.), *Mathematical Foundations of Quantum Theory,* Washington, Academic press, pp. 9-48.

133 Rosenblum, B., & Kuttner, F., (2008), *Quantum Enigma: Physics Encounters Consciousness,* Oxford, Oxford University Press.

134 Take for example a parent who has aspirations for their children to go onto further education. What are the sub-conscious reasons behind these aspirations? This is not necessarily easy (even for trained psychologists) to determine without time to compare narratives and other signs given at other times by the parent. The potential motivations for the parent's aspiration for their children's higher education could be any one or even mixture of the following: keeping face, an attempt to impress the listener, keeping up with the *"Jones"*, deny an unhappy family life, a narrative device of optimism, showing off, meeting cultural expectations, or it is the truth. Thus we cannot assume with this simple example that meaning is always easily accessible to us. We can lose meaning through our perceptions, our interpretations, or lack of empathy with the person involved. We create meaning from what we touch, small, hear, see, and taste. Most meanings we create are within social contexts which are up to us to interpret. See: Hunter, M., (2011), Perpetual Self Conflict: Self awareness as a key to our ethical drive, personal mastery, and perception of entrepreneurial opportunities, *Contemporary readings in law and Social Justice,* Vol. 3, No. 2, P. 118.

135 Hawking, S., & Mlodinow, L., (2010), "*The Grand Design",* P. 140.

136 Stapp, H., P., (1995), Why Classical Mechanics Cannot naturally Accommodate Consciousness but Quantum Mechanics Can, *PSYCHE,* Vol. 2, No. 6, accessed at: http://arxiv.org/pdf/quant-ph/9502012v1.pdf

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141 Jung proposed the notion of the emergence of experience from a realm of archetypes, which are preexisting modes of potential experience. Jung had conducted a meticulous investigation of the symbolic and mythological material of the world's diverse cultures and as a result he was able to demonstrate that there are recurring themes and motifs which were exemplified in different specifics. This led him to his notion of an archetype:
There are as many archetypes as there are typical situations in life. Endless repetition has engraved these experiences into our psychic constitution, not in the representing merely the possibility of a certain type of perception and action. When a situation occurs that corresponds to a given archetype, that archetype becomes activated. Archetypes, therefore, can be thought of as subjective propensities to experience our experience certain ways. Furthermore, archetypes are 'created' through a long chain of repetition of experience; they are the potential forms of possible experience produced by the repeated experience of all sentient beings inhabiting a universe, form of images filled with content, but at first only as forms without content.

142 Tashi Tsering Geshe, (2006), "*Buddhist Psychology"*

143 The early concept of phenomenology was developed by G.W.L. Hegel, who was interested in exploring the phenomena of conscious experience. These concepts were further developed by Edmund Husserl and Martin Heidegger, later enlarged upon by numerous philosophers including Franz Brentano, Maurice Merleau-Ponty, Max Scheler, Edith Stein, Dietrich von Hildebrand and Emmanuel Levinas. Phenomenology looks at the consciousness as a process of experience rather as a static state. Consciousness is seen as a continual process where something is always in view, whether it be a perception of an object, event or fantasy. Therefore to consciousness it is not important

whether the object is real or imaginary – the conscious intention exists of the object. In phenomenology the truth is what is intelligible based on one's subjective opinion rather than physical reality. The perceived reality comes from the individual's emotions, which are within the consciousness. The consciousness exists in the lifeworld, which in addition to the physical world includes all life experiences and memories. Some view the world as being completely transparent before the consciousness.

144 Attachment in Buddhism is a much wider concept than attachment in psychotherapy where it is primarily concerned about infant/caregiver relationships in early life. Although there are many similarities, the two concepts should not be confused.

145 Wisdom in Buddhism can be interpreted as acceptance of Karma and conscious awareness of those actions that will bring us happiness and those that will bring us suffering and the understanding of the concept of non-duality, recognizing that there is no permanence.

146 The Four Noble Truths are: 1. Our delusions of self cause our suffering, 2. Suffering is a fact of life resulting from our attachment to what we desire, 3. If we extinguish our attachment, we reduce our suffering, and 4. By following the Eightfold Path and developing wisdom, we can alleviate our suffering.

147 The Eightfold path consists of right understanding, right intention, right speech, right action, right livelihood, right effort, mindfulness and right concentration. Practice of the Eightfold Path may assist in raising consciousness to a completely non-dualistic view of subject and object.

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149 Watts, A, (1996). Buddhism the Religion of No-Religion: The edited transcripts, Boston, Turtle Publishing.

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161 From: Hoff, B., (1993), *The Te of Piglet,* New York, Penguin, P. 76.

162 Kollock, P., & O'Brien, J., (1992), The social construction of exchange, In: Lawler, E., Markovsky, B., Ridgeway, C., & Walker, H., (Eds.), *Advances in group processes, Vol. 9,* Greenwich, Conn., JAI Press.

163 Buddhadāsa Bhikkhu (2007), *Handbook for mankind: Realizing your full potential as a human being,* Bangkok, Amarin Publishing, P. 51.

164 Lovelock, J., E., (2005), "*Gaia: medicine for an ailing planet",* P. 18.

165 Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* P. 43.

166 Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* P. 43.

167 Buddhadāsa Bhikkhu (1992), "*Paticcasamuppada",* P. 19.

168 Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* P. 80.

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170 Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* P. 68.

171 Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* pp. 108 & 114.

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173 A moral hazard can be defined as a situation where one takes undue risks in taking a particular line of action where the costs in the event of any failure will not be borne by the risk taker. In such cases an agent may have more information about its actions and consequences about the decisions made than the principals, and the principals will take the negative consequences if anything goes wrong, rather than the agents. The type of situation has a high propensity to occur if principals cannot monitor the actions of the agents, *i.e., power is in the hands of the agents without any means of transparency to the principals.* See: Krugman, P., (2009), "*The return of Depression Economics and the crisis of 2008".*

174 Out of nearly 100 banking crises from the 1980s to 2000 all were bailed out by government. See: Boyd, J., Gomis, P., Kwak, S., and Smith, B., D., (2000), *A User's Guide to the Banking Crisis,* New York, World Bank, available at: http://www1.worldbank.org/finance/assets/images/depins05.pdf, (accessed 15th May 2012).

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181 Barrett, D., & Jaichand, V., (2007), The right to water, privatized water and access to justice: Tackling United Kingdom water companies' practices in developing countries, *South African Journal of Human Rights,* pp. 543-562, accessed at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1742340, (15th May 2012).

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184 Vessio, M., L., (2009), Beware the provider of reckless credit, *Journal of South African Law,* Vol. 137, accessed at: http://137.215.9.22/bitstream/handle/2263/13249/Vessio_Beware(2009).pdf?sequence=1.

185 Buddhadāsa Bhikkhu (1992), "*Paticcasamuppada",* P. 8.

186 Absolute morality - there are only independent events which arise for a moment and then pass away. Each of these events is called *paticc-samuppama-dharma* - events which arise because of reason of the law of conditionality and are called *paticcasamuppada* when they are connected together in a chain or string of events. There is no *"I"* or *"me"* in such events, so no one is born or dies and receives the results of their past deeds (as is the theory of eternalism). See: Buddhadāsa Bhikkhu (1992), "*Paticcasamuppada",* P. 19.

187 Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* P. 52.

188 Our dominant narrative is a term extended from C. K. Prahalad and Bettis's *dominant logic* as the way people deal with events and situations in life. Dominant logic consists of a mental map which orientates a person. It can either inhibit or enhance learning, growth, and fulfillment. See: Prahalad, C., K., & Bettis, A., (1986), The Dominant Logic: A new linkage between diversity and performance, *Strategic Management Journal,* Vol. 7, No. 6., pp. 485-501. Thus our awareness and intent with the corresponding actions come out of our karma which is made through our past thoughts and behavior. The events of life shape our dominant narrative, which shapes our future.

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192 Hunter, M., (2011), "Perpetual Self Conflict", pp. 112-113.

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206 This is one area where entrepreneurial thinking may be very different from management thinking. An entrepreneur without perfect information will act on intuition and hunch. Any analysis will be mental rather than through the formal processes which managers in a company situation will tend to follow. Management analysis of new ideas will tend to frame the question; what is wrong with this idea? why should it not be exploited?, what will be the potential problems?, etc. Thus analysis can become a very negative paradigm in management preventing new ideas emerging into new strategies.

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208 Alvarez, S. A, and Busenitz, L. W, (2001). "The Entrepreneurship of resource based theory".

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210 For example a painting or piece of art may not be recognized by the art community as being creative until many years after it has been created. This leads to the situation where many pieces of art only accumulate value after the artist has passed away and the act of creativity is only realized as such long after the event.

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212 Robertson-Riegler, G., and Robertson-Riegler, B. (2008). *Cognitive Psychology: Applying the Science of the Mind, 2nd Edition,* Boston, Pearson Education, Inc., pp. 472-3

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239 Corbett, A.C. & McMullen, J.S. (2007), Perceiving and Shaping New Venture Opportunities through Mindful Practice, In: Zacharakis, A. & Spinelli, S., (Eds.). *Entrepreneurship: The Engine of Growth, Volume 2, Process,* Westport CN, Praeger Perspectives, P. 48.
240 Martin, J.R. (1997). Mindfulness: A proposed common factor, *Journal of Psychotherapy Integration,* Vol. 7, pp. 291-312, Brown, K.W. & Ryan, R.M. (2003), The benefits of being present: Mindfulness and its role in psychological well-being, *Journal of Personality and Social Psychology*, Vol. 84, No. 4, pp. 822-848.
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266 When something is perpetually changing and devoid of any permanent unchanging element it can be said to be empty. When we discover that it possesses no stable component whatsoever that could be regarded as self, that is it is simply nature changing and fluctuating in accordance with the laws of nature. Buddhadāsa Bhikkhu (2007), "*Handbook for mankind",* P. 63.

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Murray has been around the traps of entrepreneurship for too long. He is a long time expat from Australia who has made Malaysia his home and tried his hand at everything from agriculture to computers, to food, to spas and to cosmetics.

Now he is taking the easy life as an associate professor at University Malaysia Perlis. Murray spends half his time in Thailand and the other half looking for opportunities in Malaysia. Murray is passionate and deadly earnest about entrepreneurship and believes everybody should have the chance to “have a go”.

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